

=> FILE REG  
FILE 'REGISTRY' ENTERED ON 03 JUL 2008  
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=> D HIS

FILE 'HCAPLUS'  
L1 362 S KNIFTON ?/AU  
L2 18861 S JAMES ?/AU  
L3 191 S SLAUGH ?/AU  
L4 150 S WEIDER ?/AU  
L5 33199 S ALLEN ?/AU  
L6 14805 S POWELL ?/AU  
L7 1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6  
L8 160 S PROPANEDIOL? AND COBALT# AND IRON#  
L9 2 S (L1-L6) AND L8  
SEL L9 2 RN

FILE 'REGISTRY'  
L10 24 S E1-E24  
L11 2 S L10 AND CO/ELS  
SEL L11 1 RN  
L12 1 S E25  
SAV L12 COR598/A  
L13 4 S L10 AND FE/ELS  
SEL L13 1,2,4 RN  
L14 3 S E26-E28  
SAV L14 COR598A/A

FILE 'LREGISTRY'  
E QUINOLINE/CN

FILE 'REGISTRY'  
L15 2 S L10 AND P/ELS

FILE 'HCA'  
L16 4392 S L12  
L17 6412 S L14  
L18 365 S L16 AND L17

FILE 'REGISTRY'  
SEL L13 1 RN  
L19 1 S E1

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FILE 'HCA'
L20      10 S L19
L21      1 S L20 AND L16

FILE 'HCAPLUS'
      SEL L7 1 RN

FILE 'REGISTRY'
L22      19 S E2-E20
L23      1 S L22 AND CO/ELS
      E OCTAETHYLPORPHYRIN IRON CHLORIDE/CN
L24      1 S E9

FILE 'HCA'
L25      210 S L24
L26      0 S L25 AND L16

FILE 'REGISTRY'
L27      5 S L22 AND RU/ELS
L28      54797 S (C (L) H (L) P (L) FE)/ELS
      E CCS/CI
L29      37486 S L28 AND COORDINATION COMPOUND/CI
L30      20381 S L29 AND 1/M

FILE 'HCA'
L31      7757 S L30
L32      63 S L16 AND L31

FILE 'REGISTRY'
L33      1 S 504-63-2

FILE 'HCA'
L34      881 S L33/P
L35      0 S L32 AND L34
L36      16772 S L28
L37      175 S L16 AND L36
L38      0 S L37 AND L34
L39      604 S L23
L40      0 S L39 AND L31
L41      0 S L39 AND L36

FILE 'REGISTRY'
L42      144946 S (C (L) CO)/ELS AND CCS/CI

FILE 'HCA'
L43      88664 S L42

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L44            601 S L43 AND L31  
L45            0 S L44 AND L34  
L46           1367 S L43 AND L36  
L47            0 S L46 AND L34

FILE 'REGISTRY'

L48           108027 S (C (L) N (L) FE)/ELS AND CCS/CI

FILE 'HCA'

L49           88389 S L48  
L50            1 S L18 AND L34  
L51           110 S L16 AND L49  
L52            1 S L51 AND L34  
L53           9274 S L43 AND L49  
L54            1 S L53 AND L34

FILE 'REGISTRY'

L55           148430 S CO/ELS AND CCS/CI  
L56           192396 S FE/ELS AND CCS/CI

FILE 'HCA'

L57           95118 S L55

FILE 'REGISTRY'

L58           189225 S L56 NOT L55

FILE 'HCA'

L59           133975 S L58  
L60           14476 S L57 AND L59  
L61            2 S L60 AND L34

FILE 'REGISTRY'

              E CO/ELS  
L62           237050 S (CO (L) C)/ELS  
L63           494674 S (FE (L) C)/ELS

FILE 'HCA'

L64           172855 S L62  
L65           14401 S L64 AND L59  
L66            2 S L65 AND L34  
L67           11137 S L29  
L68           139 S L16 AND L67  
L69            QUE CAT# OR CATALY?  
L70           43 S L68 AND L69  
L71           46911 S (FE OR IRON#) (2A) COBAL T#  
L72            5 S L70 AND L71  
L73           7408 S HYDROFORMYL?

L74                9 S L68 AND L73  
L75                9 S L70 AND L73

FILE 'LREGISTRY'  
L76                STR

FILE 'REGISTRY'  
L77                50 S L76  
L78                63414 S L76 FUL  
                  SAV L78 COR598B/A  
L79                63079 S L78 NOT CO/ELS  
L80                10880 S L79 AND P/ELS  
L81                52199 S L79 NOT L80

FILE 'HCA'  
L82                3176 S L80  
L83                43530 S L81  
L84                20 S L16 AND L82  
L85                0 S L84 AND L34  
L86                0 S L84 AND L69  
L87                0 S L84 AND L73  
L88                468 S L82 AND (L64 OR L57)

FILE 'LREGISTRY'  
L89                STR L76

FILE 'REGISTRY'  
L90                50 S L89 SSS SAM SUB=L78  
L91                7998 S L89 SSS FUL SUB=L78  
                  SAV L91 COR598C/A  
L92                55176 S L79 NOT L91

FILE 'HCA'  
L93                1808 S L91  
L94                44144 S L92  
L95                227 S L93 AND (L64 OR L57)  
L96                0 S L95 AND L34  
L97                3 S L95 AND L73  
L98                28 S L95 AND L69  
L99                10 S L98 AND L71  
L100               22 S L94 AND L16  
L101               1 S L100 AND L34  
L102               2 S L100 AND L73  
L103               6 S L100 AND L69  
L104               2 S L103 AND L71  
L105               6292 S L94 AND (L64 OR L57)  
L106               1 S L105 AND L34

L107 4 S L105 AND L73  
L108 1419 S L105 AND L69  
L109 336 S L108 AND L71  
L110 25 S L21 OR L50 OR L52 OR L54 OR L61 OR L66 OR L72 OR L97 OR  
L111 19 S 1840-2001/PY,PRY,AY AND L110

FILE 'REGISTRY'

=> D L78 QUE STAT  
L76 STR

G1~~1~~Fe~~2~~G1~~3~~  
1 2 3

VAR G1=P/N  
NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE  
L78 63414 SEA FILE=REGISTRY SSS FUL L76

100.0% PROCESSED 255174 ITERATIONS 63414 ANSWERS  
SEARCH TIME: 00.00.01

=> FILE HCA  
FILE 'HCA' ENTERED ON 03 JUL 2008  
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COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

=> D L111 1-19 BIB ABS HITSTR HITIND

L111 ANSWER 1 OF 19 HCA COPYRIGHT 2008 ACS on STN  
AN 138:5839 HCA Full-text

TI One-step production of 1, 3-propanediol from ethylene oxide and  
 syngas with an optionally ligated cobalt-iron  
 catalyst under mild conditions  
 IN Allen, Kevin Dale; James, Talmadge Gail; Knifion, John Frederick;  
 Powell, Joseph Broun; Slaugh, Lynn Henry; Weider, Paul Richard  
 PA Shell Internationale Research Maatschappij BV, Neth.  
 SO PCT Int. Appl., 36 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002094437	A1	20021128	WO 2002-EP5476	20020516

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
 NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
 TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI,  
 FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG,  
 CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 US 20030027717 A1 20030206 US 2002-146675  
 20020515

US 6750373 B2 20040615  
 TW 592819 B 20040621 TW 2002-91110123  
 20020515

CA 2447134 A1 20021128 CA 2002-2447134  
 20020516

AU 2002338961 A1 20021203 AU 2002-338961  
 20020516

EP 1409132 A1 20040421 EP 2002-743051  
 200205

16

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
BR 2002009847 A 20040615 BR 2002-9847

200205  
16

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CN 1538877 A 20041020 CN 2002-811696

200205  
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JP 2005508242 T 20050331 JP 2002-591147

200205  
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RU 2297880 C2 20070427 RU 2003-136427

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IN 2003DN01943 A 20051216 IN 2003-DN1943

200311  
17

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MX 2003PA10574 A 20040302 MX 2003-PA10574

200311  
18

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US 20040176648 A1 20040909 US 2004-790598

200403  
01

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PRAI US 2001-291827P P 20010518 <--  
US 2002-146675 A3 20020515  
WO 2002-EP5476 W 20020516

AB The present invention discloses a **catalyst** compn. comprising: (a) a cobalt component; and (b) an iron component, optionally ligated with a ligand selected from the group consisting of N-heterocycle, phosphine, and porphyrin moieties; and a process for prepg. 1,3-propanediol from ethylene oxide and syngas using such a **catalyst** compn.

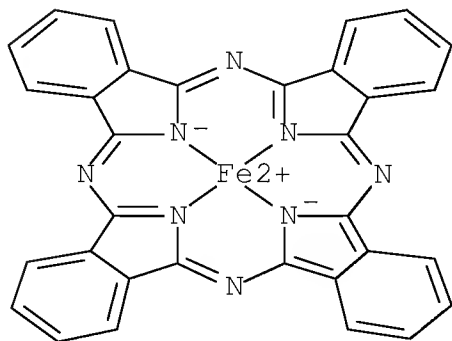
IT 132-16-1, Iron(II) phthalocyanine 10210-68-1,  
Dicobalt octacarbonyl 13463-40-6, Iron pentacarbonyl  
41697-90-9

(**catalyst** precursor; one-step prodn. of 1,  
3-propanediol from ethylene oxide and syngas with an optionally  
ligated cobalt-iron **catalyst** under

mild conditions)

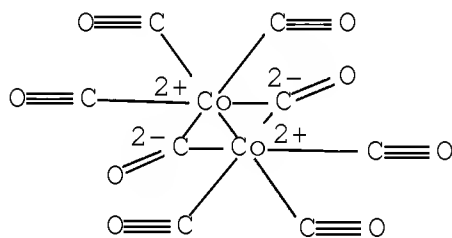
RN 132-16-1 HCA

CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



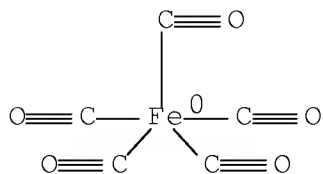
RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 13463-40-6 HCA

CN Iron carbonyl (Fe(CO)<sub>5</sub>), (TB-5-11)- (CA INDEX NAME)

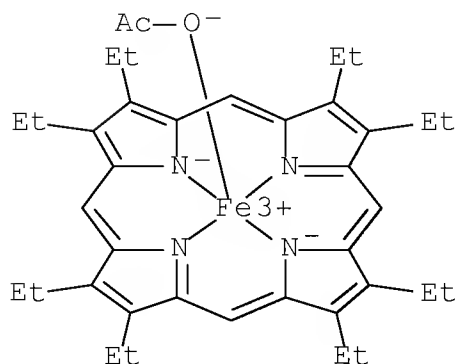


RN 41697-90-9 HCA

CN Iron, (acetato-O)[2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-



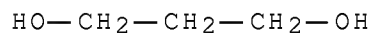
)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI)  
(CA INDEX NAME)



IT 504-63-2P, 1,3-Propanediol  
(one-step prodn. of 1, 3-propanediol from ethylene oxide and  
syngas with an optionally ligated cobalt-iron  
catalyst under mild conditions)

RN 504-63-2 HCA

CN 1,3-Propanediol (CA INDEX NAME)



IC ICM B01J031-16

ICS B01J031-20; B01J031-28; C07C029-16

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 35, 67

ST cobalt iron catalyst propanediol prodn  
ethylene oxide hydroformylation syngas

IT Heterocyclic compounds

(nitrogen, catalyst ligands; one-step prodn. of 1,  
3-propanediol from ethylene oxide and syngas with an optionally  
ligated cobalt-iron catalyst under  
mild conditions)

IT Hydroformylation catalysts

Synthesis gas

(one-step prodn. of 1, 3-propanediol from ethylene oxide and  
syngas with an optionally ligated cobalt-iron  
catalyst under mild conditions)

IT Ligands

(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 366-18-7, 2,2'-Dipyridyl 3682-35-7, 2,4,6-Tripyridyl-s-triazine  
6411-21-8, 1,2-Bis(diethylphosphino)ethane 70826-08-3  
143970-62-1 170284-98-7  
(catalyst ligand; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 132-16-1, Iron(II) phthalocyanine 10210-68-1,  
Dicobalt octacarbonyl 13463-40-6, Iron pentacarbonyl 41697-90-9  
(catalyst precursor; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 112-18-5, N,N-Dimethyldodecylamine  
(catalyst promoter; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 75-07-0P, Acetaldehyde, preparation 107-02-8P, Acrolein, preparation 2134-29-4P, 3-Hydroxypropanal  
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 7439-89-6, Iron, uses 7440-48-4, Cobalt, uses 15243-33-1, Triruthenium dodecacarbonyl  
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 504-63-2P, 1,3-Propanediol  
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 75-21-8, Ethylene oxide, reactions 630-08-0, Carbon monoxide, reactions 1333-74-0, Hydrogen, reactions  
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 108-88-3, Toluene, uses  
(solvent, mixt. with chlorobenzene; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 108-90-7, Chlorobenzene, uses

(solvent, mixt. with toluene; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 646-06-0, 1,3-Dioxolane

(solvent; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 2 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 136:217172 HCA Full-text

TI Process for the production of styrene compound, and styrene compound free from biphenyl

IN Ishikawa, Shin-ichi; Eguchi, Hisao

PA Tosoh Corporation, Japan

SO U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of U.S. Ser. No. 238,585.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 20020026084	A1	20020228	US 2001-923347	20010808
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	US 6472567	B2	20021029		
	US 6479709	B1	20021112	US 1999-238585	19990128
				<--	

PRAI	JP 1998-18681	A	19980130	<--
	JP 1998-165389	A	19980612	<--
	JP 1998-209488	A	19980724	<--
	JP 1998-209489	A	19980724	<--
	US 1999-238585	A2	19990128	<--

OS MARPAT 136:217172

AB A process for the prodn. of a styrene compd. is provided. The process comprises reacting a Grignard reagent prepd. from a tertiary butoxyphenyl halide with a vinyl halide in the presence of a catalyst, wherein the catalyst is at least one member selected from the group consisting of manganese catalyst, iron catalyst, cobalt catalyst and rhodium catalyst. The process overcomes the problems

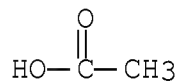
involved in the prior art, and is economical and safe. The styrene compd. by the process is free from biphenyl. Thus, 10 mL THF, 1.34 g metallic magnesium, 11.46 g p-tert-butoxybromobenzene in 20 mL THF were refluxed to give a Grignard reagent, and 0.05 g manganese(II) chloride tetrahydrate and 3.44 g vinyl chloride were added to give a p-tert-butoxystyrene.

IT 6147-53-1, Cobalt(II) acetate tetrahydrate  
18078-25-6 106245-43-6

(catalyst; process for prodn. of styrene compd., and  
styrene compd. free from biphenyl)

RN 6147-53-1 HCA

CN Acetic acid, cobalt(2+) salt, tetrahydrate (8CI, 9CI) (CA INDEX  
NAME)

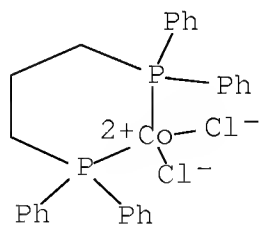


● 1/2 Co(II)

● 2 H<sub>2</sub>O

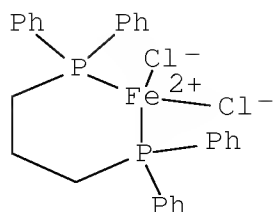
RN 18078-25-6 HCA

CN Cobalt, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,  
(T-4)- (9CI) (CA INDEX NAME)



RN 106245-43-6 HCA

CN Iron, dichloro[1,3-bis(diphenylphosphino)propane]-,  
(T-4)- (9CI) (CA INDEX NAME)



IC ICM C07C043-263  
 INCL 568630000  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 25  
 ST styrene deriv prepn safe grignard reaction catalyst  
 IT Grignard reaction catalyst  
 (process for prodn. of styrene compd., and styrene compd. free  
 from biphenyl)  
 IT 6147-53-1, Cobalt(II) acetate tetrahydrate 6156-78-1,  
 Manganese(II) acetate tetrahydrate 7646-79-9, Cobalt(II) chloride,  
 uses 7705-08-0, Iron(III) chloride, uses 13446-03-2,  
 Manganese(II) bromide 13446-34-9, Manganese(II) chloride  
 tetrahydrate 13478-10-9, Iron(II) chloride tetrahydrate  
 13569-65-8, Rhodium(III) chloride trihydrate 18078-25-6  
 19543-98-7, Dichlorobis(triphenylphosphine)iron 20049-61-0  
 32425-36-8, (2,2'-Bipyridine)dichloroiron 106245-43-6  
 236387-29-4  
 (catalyst; process for prodn. of styrene compd., and  
 styrene compd. free from biphenyl)

L111 ANSWER 3 OF 19 HCA COPYRIGHT 2008 ACS on STN  
 AN 131:338886 HCA Full-text  
 TI Metal-fluorinated and metal-perfluorinated complexes as  
 catalysts and extractants for multiphase systems  
 IN Horvath, Istvan Tamas; Rabai, Jozsef  
 PA Exxon Research and Engineering Co., USA  
 SO U.S., 8 pp., Cont.-in-part of U.S. Ser. No. 502,339, abandoned.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	US 5981422	A	19991109	US 1997-918828	199708 26

US 5463082

A

19951031

US 1993-88706

199307  
08

PRAI US 1993-88706 A3 19930708 &lt;--

US 1995-502339 B2 19950714 &lt;--

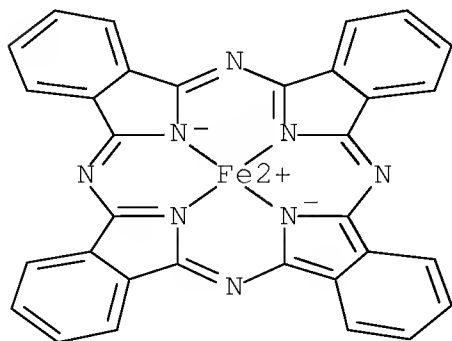
OS MARPAT 131:338886

AB Stoichiometric and catalytic chem. operations are carried out in soln. using fluorine-contg. multiphase systems contg. compds. selected from: (1) a (perfluoroalkyl)phthalocyanine metal complex, in which the metal is chosen from Ru, Fe, Co, Os, Rh, and Ir, and (2) metal complexes of (perfluoroalkyl)-5,10,15,20-tetrakis(pentafluorophenyl)porphyrin and metal complexes selected from  $\text{ClM}[\text{P}[(\text{CH}_2)_n(\text{CF}_2)\text{CF}_3]_3]_3$ ,  $\text{ClM}[\text{P}[\text{O}(\text{CH}_2)_n(\text{CF}_2)_m\text{CF}_3]_3]_3$ ,  $\text{HM}(\text{CO})_x[\text{P}[(\text{CH}_2)_n(\text{CF}_2)_m\text{CF}_3]_3]_4-x$ , and  $\text{HM}(\text{CO})_x[\text{P}[\text{O}(\text{CH}_2)_n(\text{CF}_2)_m\text{CF}_3]_3]_4-x$ , in which M = Co, Rh, Fe, Os, and Ir; x = 1-3;  $(\text{CH}_2)_n$  may be present or absent (when present, n = 1-5); and m = 4-20. The complexes are suitable for use as oxidn. catalysts and hydroformylation catalysts, and as extractants for extn. of metals from nonfluorinated solvents.

IT 132-16-1DP, Iron(II) phthalocyanine, perfluoroalkylated  
3317-67-7DP, Cobalt(II) phthalocyanine, perfluoroalkylated  
(catalysts; metal-fluorinated and metal-perfluorinated complexes as catalysts and extractants for multiphase systems)

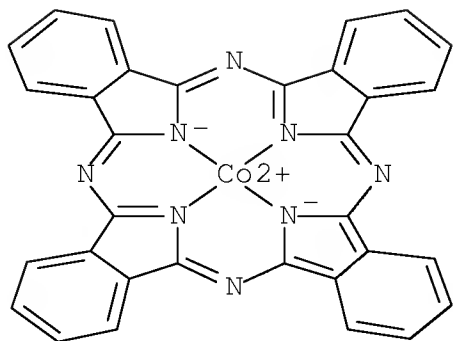
RN 132-16-1 HCA

CN Iron,  $[\text{29H}, \text{31H-phthalocyaninato}(2-)-\kappa\text{N29}, \kappa\text{N30}, \kappa\text{N31}, \kappa\text{N32}]$ -, (SP-4-1)- (CA INDEX NAME)



RN 3317-67-7 HCA

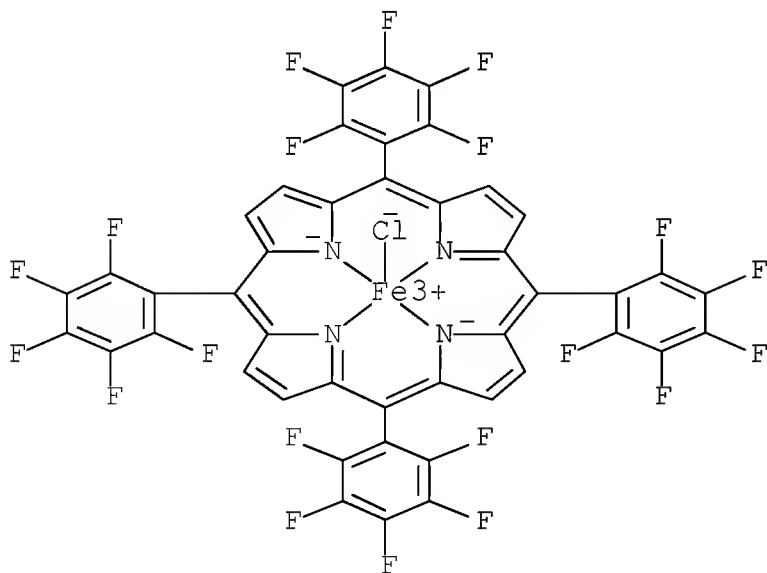
CN Cobalt,  $[\text{29H}, \text{31H-phthalocyaninato}(2-)-\kappa\text{N29}, \kappa\text{N30}, \kappa\text{N31}, \kappa\text{N32}]$ -, (SP-4-1)- (CA INDEX NAME)



IT 36965-71-6D, perfluoroalkylated  
 (catalysts; prepn. of metal-fluorinated and  
 metal-perfluorinated complexes as catalysts and  
 extractants for multiphase systems)

RN 36965-71-6 HCA

CN Iron, chloro[5,10,15,20-tetrakis(pentafluorophenyl)-21H,23H-  
 porphinato(2-)-κN21,κN22,κN23,κN24]-,  
 (SP-5-12)- (CA INDEX NAME)

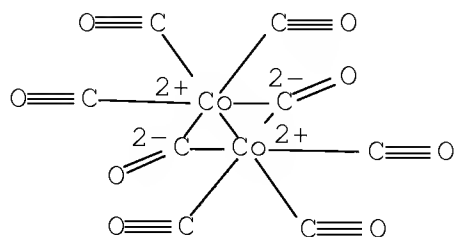


IT 10210-68-1DP, Dicobalt octacarbonyl, complexes with  
 tris(tridecafluorooctyl)phosphine  
 (hydroformylation catalysts;

metal-(fluoroalkyl)phosphine complexes as  
hydroformylation catalysts for)

RN 10210-68-1 HCA

CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



IC ICM B01J031-18

ICS C07B047-00

INCL 502163000

CC 48-8 (Unit Operations and Processes)

Section cross-reference(s): 28, 29, 45, 67

ST fluorinated compd catalyst extractant multiphase system;  
perfluorinated compd catalyst extractant multiphase  
system; oxidn catalyst multiphase fluorinated compd;  
hydroformylation catalyst multiphase fluorinated  
compd; perfluoroalkyl phthalocyanine metal oxidn catalyst

IT Extractants

(metal-fluorinated and metal-perfluorinated complexes as  
catalysts and extractants for multiphase systems)

IT Solvent extraction

(metal; metal-fluorinated and metal-perfluorinated complexes as  
catalysts and extractants for multiphase systems)

IT Phase transfer catalysts

Phase transfer catalysts

(oxidn.; metal-fluorinated and metal-perfluorinated complexes as  
catalysts and extractants for multiphase systems)

IT Alkylation

(perfluoroalkylation; in prepn. of metal-fluorinated and  
metal-perfluorinated complexes as catalysts and  
extractants for multiphase systems)

IT Oxidation catalysts

Oxidation catalysts

(phase transfer; metal-fluorinated and metal-perfluorinated  
complexes as catalysts and extractants for multiphase  
systems)

IT Hydroformylation catalysts

(phase-transfer; metal-fluorinated and metal-perfluorinated



- complexes as catalysts and extractants for multiphase systems)
- IT 132-16-1DP, Iron(II) phthalocyanine, perfluoroalkylated  
 355-43-1P, Perfluorohexyl iodide 423-62-1DP, Perfluorodecyl  
 iodide, reaction products with metal phthalocyanine complexes  
 507-63-1DP, Perfluorooctyl iodide, reaction products with metal  
 phthalocyanine complexes 3317-67-7DP, Cobalt(II)  
 phthalocyanine, perfluoroalkylated 14055-02-8DP, Nickel(II)  
 phthalocyanine, perfluoroalkylated  
 (catalysts; metal-fluorinated and metal-perfluorinated  
 complexes as catalysts and extractants for multiphase  
 systems)
- IT 36965-71-6D, perfluoroalkylated  
 (catalysts; prepn. of metal-fluorinated and  
 metal-perfluorinated complexes as catalysts and  
 extractants for multiphase systems)
- IT 822-67-3, 2-Cyclohexenol 930-68-7, 2-Cyclohexenone 6705-49-3,  
 2,3-Epoxycyclohexanone  
 (formation of, in cyclohexene oxidn.; metal-fluorinated and  
 metal-perfluorinated complexes as catalysts and  
 extractants for multiphase systems)
- IT 127-63-9, Diphenyl sulfone  
 (formation of, in di-Ph sulfide oxidn.; metal-fluorinated and  
 metal-perfluorinated complexes as catalysts and  
 extractants for multiphase systems)
- IT 1016-05-3, Dibenzothiophene sulfone  
 (formation of, in dibenzothiophene oxidn.; metal-fluorinated and  
 metal-perfluorinated complexes as catalysts and  
 extractants for multiphase systems)
- IT 7786-29-0P, Octanal, 2-methyl- 19009-56-4P, Decanal, 2-methyl-  
 35127-50-5P, Isononanal  
 (formation of; metal-(fluoroalkyl)phosphine complexes as  
 hydroformylation catalysts for)
- IT 124-19-6P, Nonanal  
 (formation of; metal-(fluoroalkyl)phosphine complexes as  
 hydroformylation catalysts for)
- IT 10210-68-1DP, Dicobalt octacarbonyl, complexes with  
 tris(tridecafluorooctyl)phosphine 14874-82-9DP, complexes with  
 tris(tridecafluorooctyl)phosphine  
 (hydroformylation catalysts;  
 metal-(fluoroalkyl)phosphine complexes as  
 hydroformylation catalysts for)
- IT 111-66-0, 1-Octene 872-05-9, 1-Decene  
 (hydroformylation of; metal-(fluoroalkyl)phosphine  
 complexes as hydroformylation catalysts for)
- IT 110-83-8, Cyclohexene, reactions 132-65-0, Dibenzothiophene  
 139-66-2, Diphenyl sulfide

(oxidn. of; metal-fluorinated and metal-perfluorinated complexes as catalysts and extractants for multiphase systems)

IT 110-54-3P, n-Hexane, processes 355-02-2P,  
Perfluoromethylcyclohexane 10049-07-7P, Rhodium trichloride  
(selective extn. of; metal-fluorinated and metal-perfluorinated complexes as catalysts and extractants for multiphase systems)

IT 103249-38-3DP, rhodium carbonyl complexes 103249-38-3P  
114469-96-4P 149790-22-7P 165805-62-9P  
(synthesis of; in prepn. of metal-fluorinated and metal-perfluorinated complexes as catalysts and extractants for multiphase systems)

IT 112-44-7P, n-Undecanal  
(synthesis of; metal-(fluoroalkyl)phosphine complexes as hydroformylation catalysts for)

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 4 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 131:144959 HCA Full-text

TI Method for preparing styrene derivatives

IN Ishikawa, Shinichi; Eguchi, Hisao

PA Tosoh Corp., Japan

SO Ger. Offen., 10 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 2

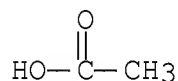
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PI	DE 19903925	A1	19990805	DE 1999-19903925	19990201
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	JP 2000239192	A	20000905	JP 1999-21787	19990129
				<--	
PRAI	JP 1998-18681	A	19980130	<--	
	JP 1998-165389	A	19980612	<--	
	JP 1998-209488	A	19980724	<--	
	JP 1998-209489	A	19980724	<--	
	JP 1998-357438	A	19981216	<--	
OS	MARPAT 131:144959				
AB	The use of manganese, iron, cobalt and rhodium catalysts in the manuf. of styrene derivs. by the reaction of a vinyl halide with a				

Grignard reagent prepd. from an arom. halogen compd. produces higher yields with lower costs than conventional processes. Thus, a soln. of 11.46 g p-tert-butoxybromobenzene in 20 mL THF was added dropwise to a THF soln. of MgI, under N. After stirring for 1 h at 40°-50°, 0.05 g MnCL2.4H2O was added to the reaction mixt. contg. the Grignard reagent. Then 3.44 g vinyl chloride was added in 10 min and the mixt. was stirred for 1 h at 20°-30°. The reaction mixt. was worked up to give an 80.2% yield of p-tert-butoxystyrene was obtained.

IT 6147-53-1, Cobalt acetate tetrahydrate 18078-25-6  
106245-43-6  
(catalyst; in manuf. of styrene derivs. from arom.  
halogen compd. Grignard reagent and vinyl halide)

RN 6147-53-1 HCA

CN Acetic acid, cobalt(2+) salt, tetrahydrate (8CI, 9CI) (CA INDEX  
NAME)

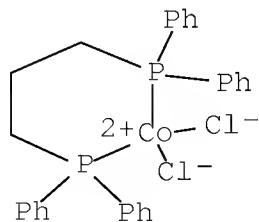


● 1/2 Co(II)

● 2 H2O

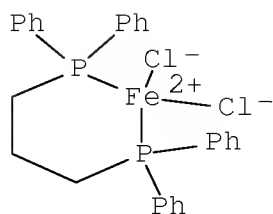
RN 18078-25-6 HCA

CN Cobalt, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,  
(T-4)- (9CI) (CA INDEX NAME)



RN 106245-43-6 HCA

CN Iron, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,  
(T-4)- (9CI) (CA INDEX NAME)



IC ICM C07B049-00  
ICS C07C041-30; C07C017-269; C07C001-22; C07C043-225; C07C025-28;  
C07C015-46

CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 25

ST styrene deriv manuf; iron catalyst manuf styrene deriv;  
manganese catalyst manuf styrene deriv; cobalt  
catalyst manuf styrene deriv; rhodium catalyst  
manuf styrene deriv; butoxystyrene manuf

IT 6147-53-1, Cobalt acetate tetrahydrate 6156-78-1,  
Manganese acetate tetrahydrate 7646-79-9, Cobalt chloride (CoCl<sub>2</sub>),  
uses 7705-08-0, Ferric chloride, uses 7758-94-3, Ferrous  
chloride 13446-03-2, Manganese bromide 13446-34-9, Manganese  
chloride tetrahydrate 13446-69-0, Rhodium trichloride tetrahydrate  
13478-10-9, Ferrous chloride tetrahydrate 18078-25-6  
19543-98-7, Iron dichlorobis(triphenylphosphine) 20049-61-0, Iron  
bromide (FeBr<sub>2</sub>) tetrahydrate 32425-36-8 106245-43-6  
236387-29-4  
(catalyst; in manuf. of styrene derivs. from arom.  
halogen compd. Grignard reagent and vinyl halide)

IT 622-97-9P, p-Methylstyrene 1073-67-2P 95418-58-9P,  
p-tert-Butoxystyrene 105612-79-1P  
(manuf. of styrene derivs. from arom. halogen compd. Grignard  
reagent and vinyl halide in presence of iron,  
manganese, cobalt and rhodium catalysts)

IT 75-01-4, reactions 106-38-7, p-Bromotoluene 106-39-8,  
p-Bromochlorobenzene 60876-70-2, p-tert-Butoxybromobenzene  
99376-83-7  
(reactant; manuf. of styrene derivs. from arom. halogen compd.  
Grignard reagent and vinyl halide in presence of iron,  
manganese, cobalt and rhodium catalysts)

L111 ANSWER 5 OF 19 HCA COPYRIGHT 2008 ACS on STN  
AN 129:189670 HCA Full-text  
OREF 129:38537a,38540a  
TI Process for the preparation of acylaminocarboxylic acids by

carboxymethylation

IN Stern, Michael K.; Johnson, Todd J.; Rogers, Michael D.; Levine,  
Jeffrey A.; Morgenstern, David A.; Fobian, Yvette M.

PA Monsanto Company, USA

SO PCT Int. Appl., 160 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 4

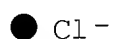
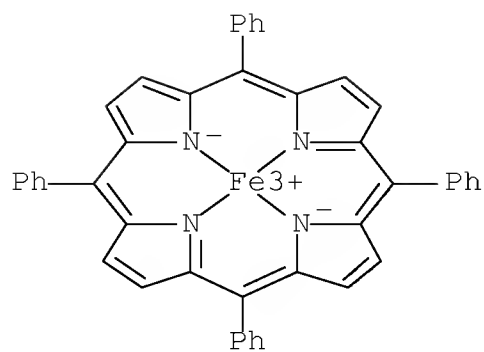
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 9835930	A1	19980820	WO 1998-US2882	199802 12
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	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
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AU	9863264	A	19980908	AU 1998-63264	199802 12
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AU	740288	B2	20011101		
CA	2509953	A1	19990812	CA 1998-2509953	199802 12
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EP	973719	A1	20000126	EP 1998-907465	199802 12
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	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
NZ	335654	A	20000623	NZ 1998-335654	199802 12

BR 9806266	A	20001017	BR 1998-6266	199802 12
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HU 2000002032	A2	20001028	HU 2000-2032	199802 12
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HU 2000002032	A3	20011228		
HU 2000002391	A2	20001128	HU 2000-2391	199802 12
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HU 2000002391	A3	20030828		
US 6153753	A	20001128	US 1998-22967	199802 12
			<--	
NZ 335649	A	20010126	NZ 1998-335649	199802 12
			<--	
JP 2001511810	T	20010814	JP 1998-535970	199802 12
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AT 325799	T	20060615	AT 1998-906441	199802 12
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EP 1716923	A1	20061102	EP 2006-6198	199802 12
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ZA 9801220	A	19980817	ZA 1998-1220	199802 13
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TW 464537	B	20011121	TW 1998-87102054	199802

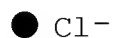
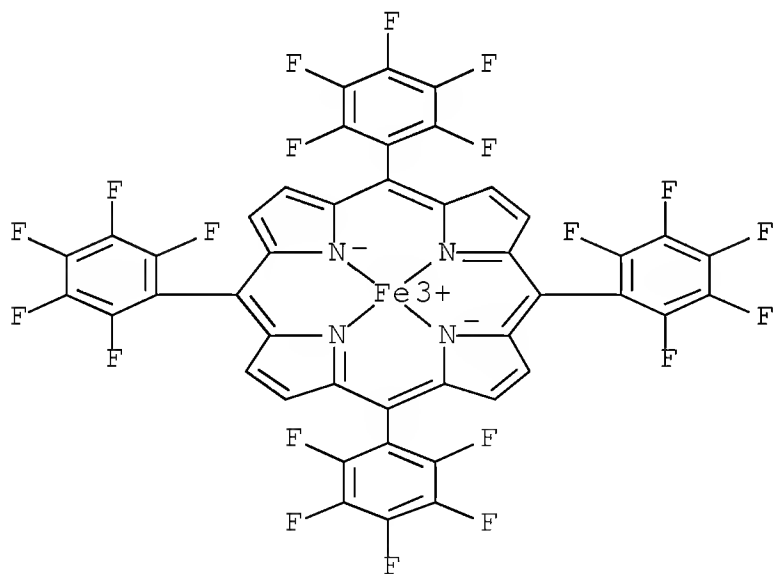
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US 6265605	B1	20010724	US 2000-499699	
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AU 728830	B2	20010118	AU 2000-17567	
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US 20020002281	A1	20020103	US 2001-871829	
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IN 2001MA00616	A	20050304	IN 2001-MA616	
				20010727
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IN 2001MA00617	A	20050304	IN 2001-MA617	
				20010727
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US 20030088122	A1	20030508	US 2002-151650	
				20020520
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AU 2003200725	A1	20030501	AU 2003-200725	
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AU 2003200725	B2	20050721		
US 20030225298	A1	20031204	US 2003-408515	
				20030407
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	US 6759549	B2	20040706	
PRAI	US 1997-37775P	P	19970213	<--
	AU 1998-61663	A	19980212	<--
	CA 1998-2275866	A3	19980212	<--
	EP 1998-906441	A	19980212	<--
	US 1998-22967	A	19980212	<--
	WO 1998-US2882	W	19980212	<--
	AU 1999-38959	A3	19990510	<--
	US 2000-499699	A3	20000207	<--
	US 2001-871829	A3	20010601	<--
	US 2002-151650	B1	20020520	
OS	CASREACT 129:189670; MARPAT 129:189670			
AB	<p>A process for the prepn. of N-acylamino carboxylic acids by carboxymethylation reactions is described. In these reactions, a reaction mixt. is formed which contains a base pair, carbon monoxide, hydrogen, and an aldehyde with the base pair comprising a carbamoyl compd. and a carboxymethylation catalyst precursor. In a preferred embodiment, the carbamoyl compd. and aldehyde are selected to yield an N-acylamino carboxylic acid which is readily converted to N-(phosphonomethyl)glycine, or a salt or ester thereof. Addnl., a process for oxidative dealkylation of N-alkylglyphosate derivs. with oxygen in the presence of platinum and a catalyst modifier is described. Thus, 11.8 g of acetamide, 13.6 g of 95% paraformaldehyde, 12.9 g water, 1.8 g 37% HCl, 90 mL DME, and 4.1 g Co<sub>2</sub>(CO)<sub>8</sub> was added to a 300 mL autoclave and pressurized to 1500 psi with CO at 25°. The mixt. was heated to 110° for 30 min, and HPLC anal. gave 87% of N-acetylaminodiacetic acid along with 0.5% iminodiacetic acid and 4.0% N-acetylglycine. Many other reactions using different carbonyl compds., different cobalt catalysts, and different reaction conditions are given.</p>			
IT	170645-84-8 211934-69-9			
	(prepn. of aminocarboxylic acids by carboxymethylation)			
RN	170645-84-8 HCA			
CN	Iron(1+), [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, chloride, (SP-4-1)-(9CI) (CA INDEX NAME)			

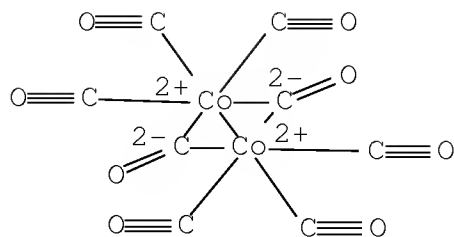




RN 211934-69-9 HCA  
 CN Iron(1+), [5,10,15,20-tetrakis(pentafluorophenyl)-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, chloride (1:1), (SP-4-1)- (CA INDEX NAME)



IT 10210-68-1F, Dicobalt octacarbonyl  
 (prepn. of aminocarboxylic acids by carboxymethylation)  
 RN 10210-68-1 HCA  
 CN Cobalt, di-μ-carbonylhexasacarbonyldi-, (Co-Co) (CA INDEX NAME)



IC ICM C07C062-00  
 ICS C07C061-09; C07C061-10; C07C061-24; C07C233-00; C07C235-00;  
 C07C237-00; C07D241-18; C07D251-14; C07F009-22; C07F009-28

CC 34-2 (Amino Acids, Peptides, and Proteins)  
 Section cross-reference(s): 5, 24

ST acylaminocarboxylic acid prepn carboxymethylation process; carbamoyl  
 compd aldehyde carboxymethylation process; glyphosate prepn process;  
 oxidative dealkylation process platinum catalyst

IT Methylation catalysts  
 (carboxymethylation catalysts; prepn. of  
 aminocarboxylic acids by carboxymethylation in presence of cobalt  
 catalysts)

IT Carboxymethylation  
 (catalysts; prepn. of aminocarboxylic acids by  
 carboxymethylation in presence of cobalt catalysts)

IT Dealkylation  
 Dealkylation catalysts  
 (oxidative; oxidative dealkylation of alkylglyphosate derivs.  
 with platinum and catalyst modifiers)

IT 102-54-5, Ferrocene 345-92-6, 4,4'-Difluorobenzophenone  
 519-73-3, Triphenylmethane 524-38-9, N-Hydroxyphthalimide  
 2564-83-2, TEMPO 4316-58-9, Tris(4-bromophenyl)amine 7061-81-6  
 7440-06-4, Platinum, uses 14172-92-0 14323-06-9,  
 Rutheniumtris(2,2'-bipyridine) dichloride 22541-53-3, uses  
 170645-84-8 211934-69-9  
 (prepn. of aminocarboxylic acids by carboxymethylation)

IT 10210-68-1P, Dicobalt octacarbonyl  
 (prepn. of aminocarboxylic acids by carboxymethylation)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 6 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 123:87349 HCA Full-text

OREF 123:15549a,15552a

TI Fluorous multiphase catalyst or reagent systems for environmentally  
 friendly oxidation or hydroformylation or extraction

processes  
 IN Horvath, Istvan Tamas; Rabai, Jozsef  
 PA Exxon Research and Engineering Co., USA  
 SO Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 2

	PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
PI	EP 633062	A1	19950111	EP 1994-304877	199407 04
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	EP 633062	B1	19990908		
	R: DE, FR, GB, IT, NL				
	US 5463082	A	19951031	US 1993-88706	199307 08
				<--	
	CA 2126778	A1	19950109	CA 1994-2126778	199406 27
				<--	
	AU 9467313	A	19950119	AU 1994-67313	199407 06
				<--	
	AU 673743	B2	19961121		
	NO 9402563	A	19950109	NO 1994-2563	199407 07
				<--	

NO 308343 B1 20000904  
 PRAI US 1993-88706 A 19930708 <--

AB Stoichiometric and catalytic chem. transformations may be carried out in soln. using novel fluorous multiphase systems (FMS). Fluorous denotes a C-F bond-rich org. mol. derived by replacing H bonded to C with F. The FMS consists of a fluorous phase contg. a fluorous solvent, typically a fluorocarbon or a fluorohydrocarbon (with or without substituent groups), and a reagent or a catalyst contg. a sufficient no. of fluorous moieties to render it preferentially sol. in the fluorous solvent and located at the interface of the fluorous and nonfluorous phases. The nonfluorous solvent may be any known org. or nonorg. solvent with limited or no soly. in the fluorous solvent and is effective for dissolving the reaction products (e.g.,

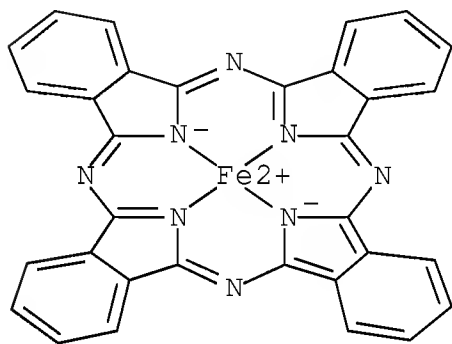
a nonfluorous solvent having a Hildebrand soly. parameter of at least about 18.0 MPa<sup>1/2</sup>). The reaction can occur simultaneously in the fluorous phase and at the interface of the phases. The fluorous multiphase systems facilitate the sepn. of the FMS catalyst or spent FMS reagent, providing catalysts and reagents with high product selectivity, resulting in esp. environmentally friendly processes.

IT 132-16-1 3317-67-7, Phthalocyaninato cobalt (II)  
16456-81-8

(fluorous multiphase catalyst or reagent systems for oxidn. or hydroformylation or extn.)

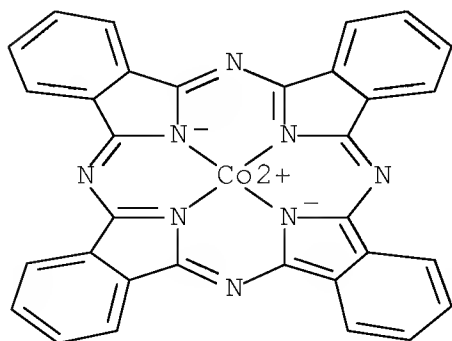
RN 132-16-1 HCA

CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



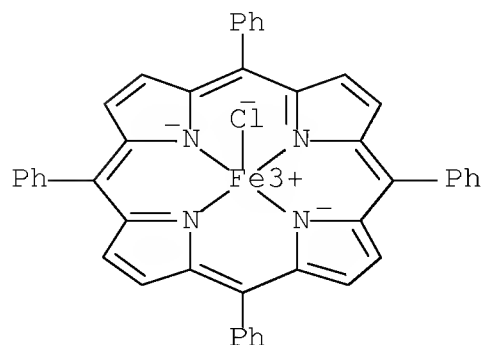
RN 3317-67-7 HCA

CN Cobalt, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



RN 16456-81-8 HCA

CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
κN21,κN22,κN23,κN24]-, (SP-5-12)- (CA INDEX  
NAME)



IC ICM B01J031-16  
ICS B01J031-02

CC 48-8 (Unit Operations and Processes)  
Section cross-reference(s): 60, 67

ST fluorous multiphase catalyst system; oxidn fluorous multiphase  
catalyst system; **hydroformylation** fluorous multiphase  
catalyst; extn fluorous multiphase catalyst system

IT Extraction  
(fluorous multiphase catalyst or reagent systems for oxidn. or  
**hydroformylation** or extn.)

IT **Hydroformylation** catalysts  
Oxidation catalysts  
(fluorous multiphase catalyst or reagent systems for oxidn. or  
**hydroformylation** or extn.)

IT Perfluorocarbons  
(solvents; fluorous multiphase catalyst or reagent systems for  
oxidn. or **hydroformylation** or extn.)

IT Hydrocarbons, uses  
(fluoro, solvents; fluorous multiphase catalyst or reagent  
systems for oxidn. or **hydroformylation** or extn.)

IT 132-16-1 3317-67-7, Phthalocyaninato cobalt (II)  
14055-02-8, Phthalocyaninato nickel(II) 16456-81-8  
103249-38-3 114469-96-4 149790-22-7 165805-62-9  
(fluorous multiphase catalyst or reagent systems for oxidn. or  
**hydroformylation** or extn.)

IT 110-83-8, Cyclohexene, reactions 132-65-0, Dibenzothiophene  
139-66-2, Diphenyl sulfide 872-05-9, 1-Decene  
(fluorous multiphase catalyst or reagent systems for oxidn. or  
**hydroformylation** or extn.)

IT 110-54-3, n-Hexane, processes 7440-16-6, Rhodium, processes  
(fluorous multiphase catalyst or reagent systems for oxidn. or  
hydroformylation or extn.)

L111 ANSWER 7 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 119:84650 HCA Full-text

OREF 119:14967a,14970a

TI Oxidation of iron-subgroup metal carbonyls by organic hydroperoxides

AU Spirina, I. V.; Sergeev, S. A.; Shashkova, T. V.; Cherkasov, V. K.;  
Maslennikov, V. P.

CS NII Khim., Nizhniy Novgorod, Russia

SO Zhurnal Obshchei Khimii (1992), 62(12), 2656-62

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

OS CASREACT 119:84650

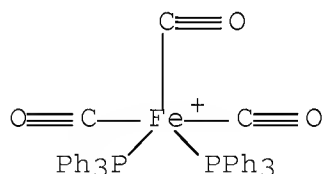
AB During oxidn. of Fe, Co, and Ni carbonyls by ROOH in hydrocarbons,  
CO, CO<sub>2</sub>, metal oxides, carbonates, and reaction products of the  
peroxy fragments are formed. The 1st stages of reaction are the  
transfer of an electron from Mn(CO)<sub>m</sub> (M = Fe, Co, Ni) to the peroxide  
and the appearance of metal carbonyl cation radicals. The process is  
accompanied by the catalytic decompn. of ROOH and by the oxidn. the  
hydrocarbon used as solvent.

IT ~~60243-26-7P~~ ~~86469-05-8P~~

(formation of, by oxidn. of iron carbonyl phosphine complex by  
hydroperoxide)

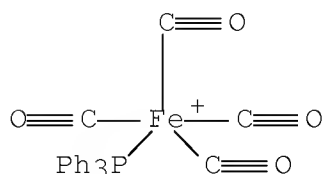
RN 60243-26-7 HCA

CN Iron(1+), tricarbonylbis(triphenylphosphine)-, (TB-5-11)- (CA INDEX  
NAME)

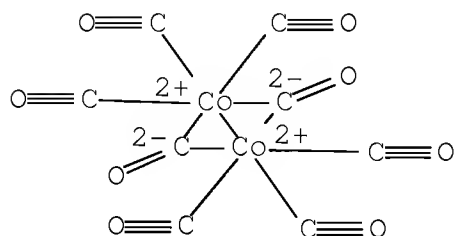


RN 86469-05-8 HCA

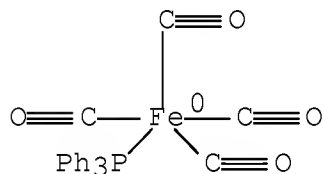
CN Iron(1+), tetracarbonyl(triphenylphosphine)- (CA INDEX NAME)



IT 10210-68-1, Dicobalt octacarbonyl 35679-07-3,  
 Tetracarbonyl(triphenylphosphine)iron  
 (oxidn. of, by hydroperoxides)  
 RN 10210-68-1 HCA  
 CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 35679-07-3 HCA  
 CN Iron, tetracarbonyl(triphenylphosphine)-, (TB-5-12)- (CA INDEX NAME)



CC 78-9 (Inorganic Chemicals and Reactions)  
 Section cross-reference(s): 22, 67  
 IT 60243-26-7P 86469-05-8P  
 (formation of, by oxidn. of iron carbonyl phosphine complex by hydroperoxide)  
 IT 75-91-2, tert-Butyl hydroperoxide 80-15-9, 1-Methyl-1-phenylethyl hydroperoxide  
 (oxidn. by, of cobalt and iron and nickel carbonyls)  
 IT 10210-68-1, Dicobalt octacarbonyl 13463-39-3, Nickel tetracarbonyl 13463-40-6, Iron pentacarbonyl 15321-51-4, Diiron nonacarbonyl 17685-52-8, Triiron dodecacarbonyl 17786-31-1, Tetracobalt dodecacarbonyl 35679-07-3,  
 Tetracarbonyl(triphenylphosphine)iron

(oxidn. of, by hydroperoxides)

L111 ANSWER 8 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 118:191996 HCA Full-text

OREF 118:32993a,32996a

TI Preparation and catalytic properties of polymer-supported iron-cobalt-copper and iron-cobalt-gold pentametallic clusters

AU Jia, Chengguo; Wang, Yunpu; Feng, Hanyu

CS Dep. Chem., Northwest. Norm. Univ., Lanzhou, 730070, Peop. Rep. China

SO Reactive Polymers (1992), 18(3), 203-11

CODEN: REPLEN; ISSN: 0923-1137

DT Journal

LA English

OS CASREACT 118:191996

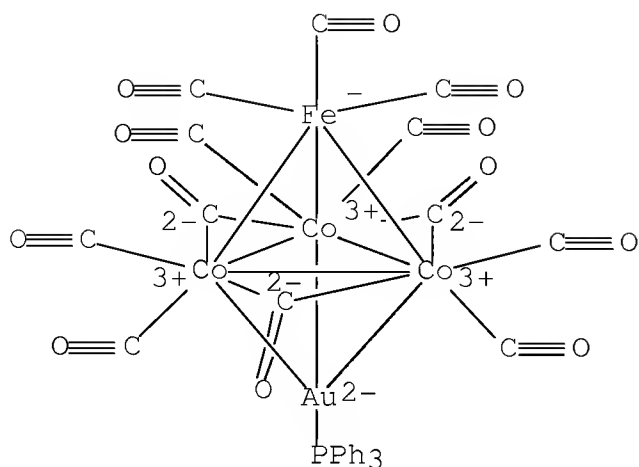
AB Two polymer-supported metal clusters: (POL-C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>-PPh<sub>2</sub>M- $\mu$ <sub>3</sub>)FeCo<sub>3</sub>(CO)<sub>12</sub> [B, M = Cu and D, M = Au, POL = poly(styrene-divinylbenzene)] were synthesized and their structures were studied spectroscopically. B and D were more stable and more selective as catalysts for the prodn. of n-heptyl aldehyde in the hydroformylation of 1-hexene than the corresponding homogeneous cluster: A, (Ph<sub>3</sub>PCu- $\mu$ <sub>3</sub>)FeCo<sub>2</sub>(CO)<sub>12</sub> and C, (Ph<sub>3</sub>PAu- $\mu$ <sub>3</sub>)FeCo<sub>3</sub>(CO)<sub>12</sub>. The polymer support enhanced stability and catalytic selectivity of the clusters. C and D, which contained gold atoms, were more active in the hydroformylation reaction and less thermostable than A and B which contained copper atoms. The polymer-supported clusters could be reused in the catalytic reaction without serious degrdn.

IT 79829-47-3 90636-10-5 146912-29-0D,  
polymer-supported 146912-30-3D, polymer-supported  
(prepn. as catalyst for hydroformylation of hexene)

RN 79829-47-3 HCA

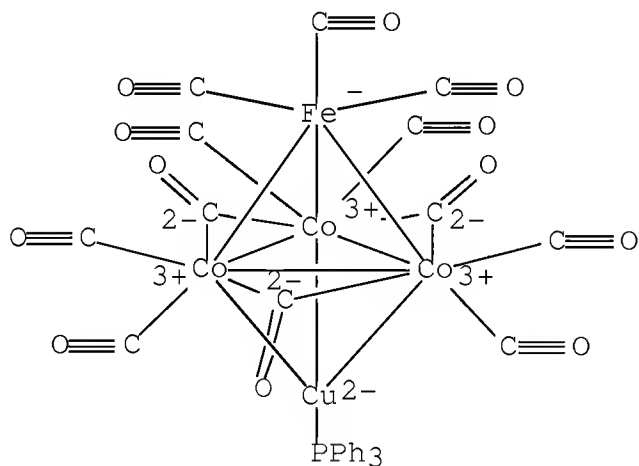
CN Iron, tricarbonyl(tri- $\mu$ -carbonylhexacarbonyltricobalt)[(triphenyl phosphine)gold]-, (3Au-Co)(3Co-Co)(3Co-Fe) (9CI) (CA INDEX NAME)





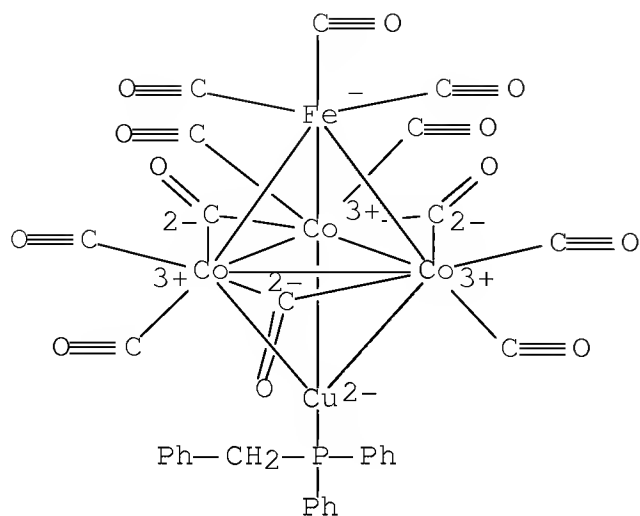
RN 90636-10-5 HCA

CN Iron, tricarbonyl(tri- $\mu$ -carbonylhexacarbonyltricobalt)[(triphenyl phosphine)copper]-, (3Co-Co)(3Co-Cu)(3Co-Fe) (9CI) (CA INDEX NAME)



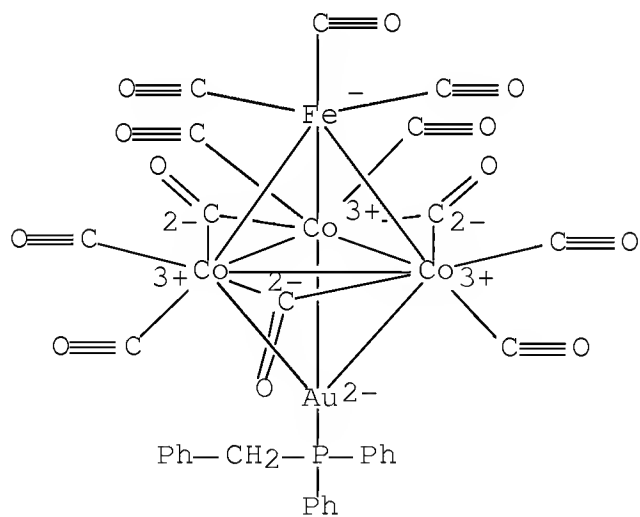
RN 146912-29-0 HCA

CN Iron, tricarbonyl[[diphenyl(phenylmethyl)phosphine]copper](tri- $\mu$ -carbonylhexacarbonyltricobalt)-, (3Co-Co)(3Co-Cu)(3Co-Fe) (9CI) (CA INDEX NAME)



RN 146912-30-3 HCA

CN Iron, tricarbonyl[[diphenyl(phenylmethyl)phosphine]gold](tri- $\mu$ -carbonylhexacarbonyltricobalt)-, (3Au-Co)(3Co-Co)(3Co-Fe) (9CI) (CA INDEX NAME)

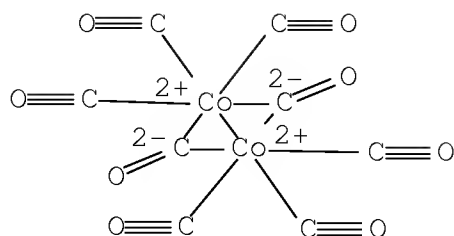


IT 10210-68-1, Dicobalt octacarbonyl

(reaction of, with iron pentacarbonyl and polymer-copper or -gold)

RN 10210-68-1 HCA

CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



- CC 29-14 (Organometallic and Organometalloidal Compounds)  
Section cross-reference(s): 23, 35
- ST polymer supported metal cluster catalyst; iron metal cluster catalyst polymer supported; cobalt metal cluster catalyst polymer supported; copper metal cluster catalyst polymer supported; gold metal cluster catalyst polymer supported; hydroformylation polymer supported metal cluster catalyst
- IT Cluster compounds, coordinative  
(metal, polymer-supported, catalysts, for hydroformylation of hexene)
- IT Hydroformylation catalysts  
(polymer-supported metal clusters, for hexene)
- IT 592-41-6, 1-Hexene, reactions  
(hydroformylation of, polymer-supported cluster complexes as catalyst for)
- IT 79829-47-3 90636-10-5 146912-29-0D, polymer-supported 146912-30-3D, polymer-supported (prepn. as catalyst for hydroformylation of hexene)
- IT 111-71-7P, Heptaldehyde  
(prepn. of, by hydroformylation of hexene in presence of polymer-supported cluster complex catalysts)
- IT 10210-68-1, Dicobalt octacarbonyl  
(reaction of, with iron pentacarbonyl and polymer-copper or -gold)
- L111 ANSWER 9 OF 19 HCA COPYRIGHT 2008 ACS on STN
- AN 117:130707 HCA Full-text
- OREF 117:22683a,22686a
- TI Involvement of  $\text{Co}_4(\text{CO})_8(\mu_2\text{-CO})_2(\mu_4\text{-PPh})_2$  catalysts in olefin hydroformylation
- AU Pittman, Charles U., Jr.; Hilal, Hikmat; Don, Ming Jaw; Richmond, Michael G.
- CS Dep. Chem., Mississippi State Univ., Mississippi State, MS, USA
- SO Chemical Industries (Dekker) (1992), 47(Catal. Org.

React.), 307-35

CODEN: CHEIDI; ISSN: 0737-8025

DT Journal

LA English

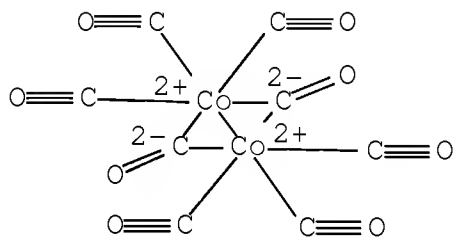
AB Homogeneous **hydroformylation** of terminal alkenes, e.g., 1-pentene or 1-octene, over  $\text{Co}_4(\text{CO})_8(\mu_2\text{-CO})_2(\mu_4\text{-PPh})_2$  or  $\text{Fe}_2\text{Co}_2(\text{CO})_{10}(\mu_2\text{-CO})(\mu_4\text{-PPh})_2$  was investigated. Techniques used included kinetic measurements, product selectivities, and cylindrical internal reflectance-Fourier transform IR spectroscopy. Both catalysts persist during catalysis at  $130^\circ$ .

IT 10210-68-1 58092-22-1 78456-88-9

(catalysts, for olefin hydroformylation)

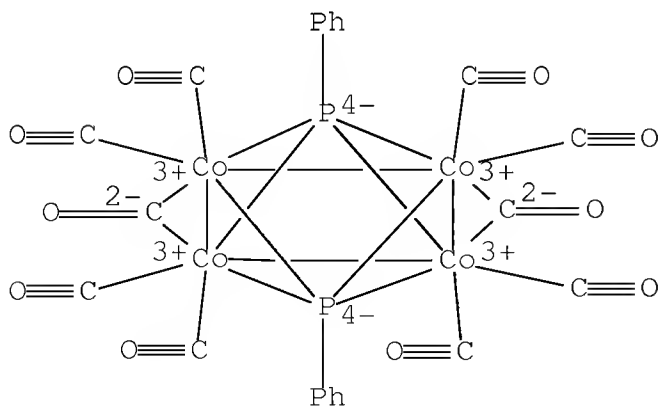
RN 10210-68-1 HCA

CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 58092-22-1 HCA

CN Cobalt, di- $\mu$ -carbonyloctacarbonylbis[ $\mu_4$ -(phenylphosphoranetetrayl)]tetra-, (4Co-Co) (9CI) (CA INDEX NAME)

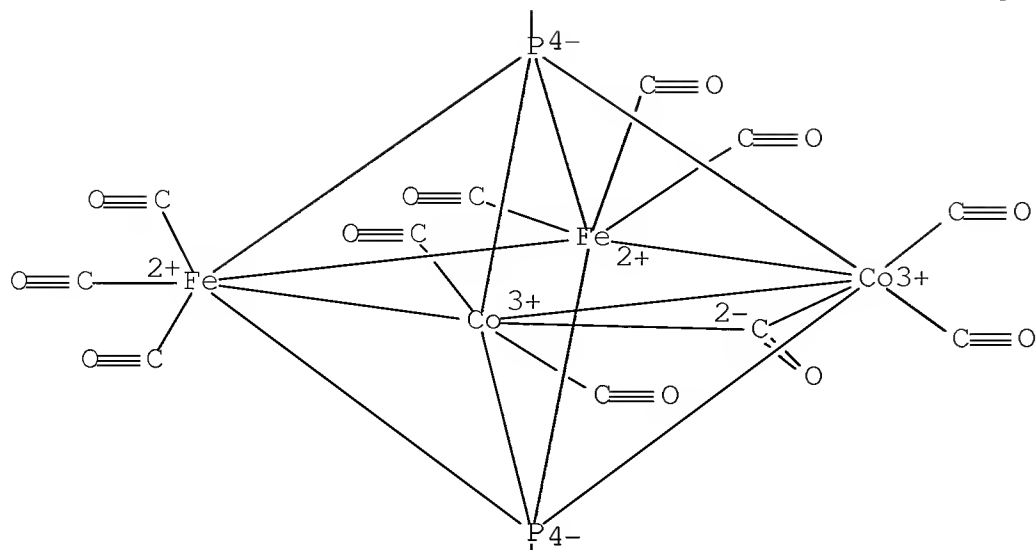


RN 78456-88-9 HCA

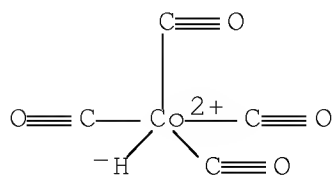
CN Iron, hexacarbonyl( $\mu$ -carbonyltetracarbonyldicobalt)bis[ $\mu$ 4-  
(phenylphosphoranetetrayl)]di-, (Co-Co)(2Co-Fe)(Fe-Fe) (9CI) (CA  
INDEX NAME)

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IT 12373-54-5P  
 (formation of, during cobalt cluster-catalyzed  
 hydroformylation of alkenes)  
 RN 12373-54-5 HCA  
 CN Cobalt(1+), tetracarbonylhydro- (CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)  
 ST cluster compd olefin hydroformylation catalyst; cobalt  
 cluster compd olefin hydroformylation  
 IT Cluster compounds, coordinative  
 (catalysts, for olefin hydroformylation)  
 IT Hydroformylation catalysts  
 (cobalt clusters, for terminal alkenes)  
 IT Alkenes, reactions  
 (hydroformylation of, over cobalt cluster catalysts)  
 IT Hydroformylation  
 Kinetics of hydroformylation  
 (of alkenes over cobalt clusters)  
 IT 603-35-0, Triphenylphosphine, uses  
 (catalysts with cobalt complex, for olefin  
 hydroformylation)  
 IT 10210-68-1 58092-22-1 78456-88-9  
 (catalysts, for olefin hydroformylation)  
 IT 12373-54-5P  
 (formation of, during cobalt cluster-catalyzed  
 hydroformylation of alkenes)  
 IT 109-67-1, 1-Pentene 111-66-0, 1-Octene  
 (hydroformylation of, over cobalt cluster catalysts)  
 IT 630-08-0  
 (hydroformylation, of alkenes over cobalt clusters)

L111 ANSWER 10 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 112:45341 HCA Full-text

OREF 112:7643a,7646a

TI Photochemical and photocatalytic studies of fluorophosphine-bridged  
 iron and cobalt dimers

AU Richmond, Michael G.; Pittman, Charles U., Jr.

CS Cent. Organomet. Res. Educ., Univ. North Texas, Denton, TX, 76203,  
 USA

SO Journal of Molecular Catalysis (1989), 53(1), 79-103

CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

AB Irradn. (254, 300, 355 nm) of [MeN(PF<sub>2</sub>)<sub>2</sub>]<sub>3</sub>Co<sub>2</sub>(CO)<sub>2</sub> (I),  
 [MeN(PF<sub>2</sub>)<sub>2</sub>]<sub>3</sub>Co<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub> (II), and [MeN(PF<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Fe<sub>2</sub>(CO)<sub>5</sub> (III) at room  
 temp. in the presence of acetophenone and SiHET<sub>3</sub> leads to  
 photoassisted hydrosilation with moderate quantum yields (0.037,  
 0.004, and 0.07 at 335 nm, resp). The quantum yields ( $\Phi$ ) vary  
 as a function of the irradn. wavelength ( $\Phi_{300} > \Phi_{254} > \Phi_{355}$ ) and are  
 drastically reduced when the reaction is conducted in the presence of  
 either CO or PPh<sub>3</sub>. The wavelength dependence and external ligand  
 quenching is consistent with dissociative CO loss from an upper  
 excited state. UV spectral analyses suggest that the  $\sigma \rightarrow \sigma^*$

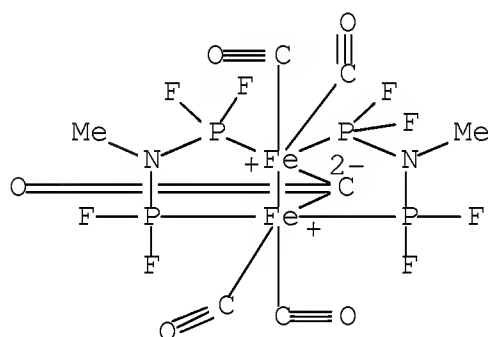
electronic transition is responsible for the obsd. quantum yield trends. Photocatalyzed 1-pentene isomerization was obsd. with I but not with II or III at 355 nm. Variable temp. studies of the photocatalyzed 1-pentene isomerization catalyzed by I show that a thermally active catalytic species is present. Photocatalyzed hydrogenation of 1-pentene was achieved with I, but only at high H pressure (.apprx.100 psi). Attempted 1-pentene hydrosilation with SiH<sub>Et</sub>3, catalyzed by I, led only to olefin isomerization. UV irradiation of I in the presence of SiH<sub>Et</sub>3 led to the oxidative addition of silane to one Co atom, to afford [MeN(PF<sub>2</sub>)<sub>2</sub>]<sub>2</sub>Co<sub>2</sub>(CO)H(SiCl<sub>3</sub>). Dimer fragmentation was not obsd. with I or II due to the geometrical constraints imposed by the 3 bridging ligands.

IT 62944-85-8 64799-21-9 66632-91-5

(photochem. and photocatalytic properties of)

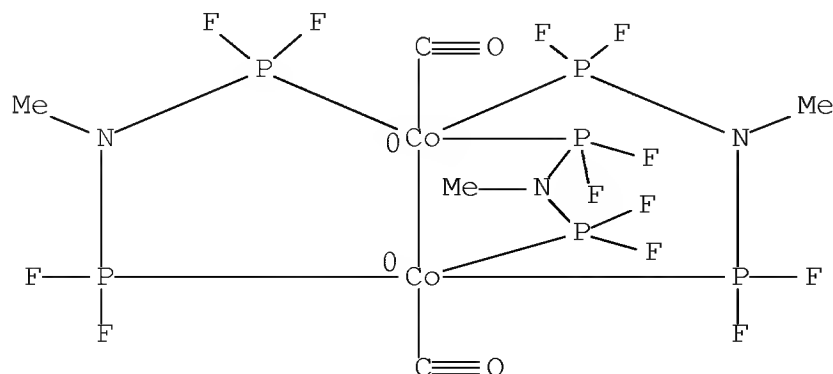
RN 62944-85-8 HCA

CN Iron,  $\mu$ -carbonyltetracarbonylbis[ $\mu$ -(methylimidodiphosphorous tetrafluoride-P:P')]di-, (Fe-Fe) (9CI) (CA INDEX NAME)



RN 64799-21-9 HCA

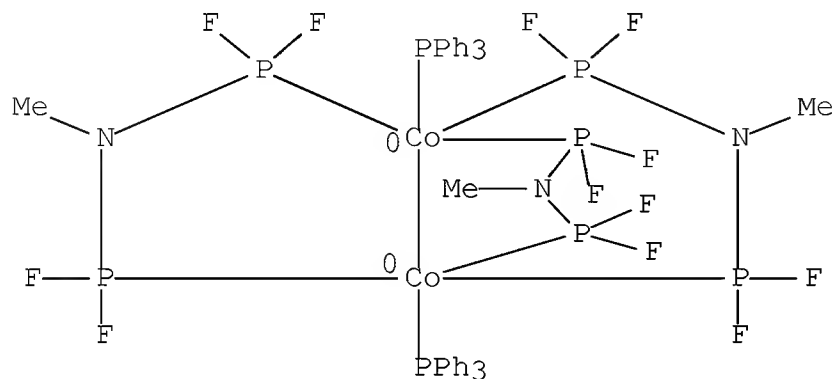
CN Cobalt, dicarbonyltris[ $\mu$ -(methylimidodiphosphorous tetrafluoride-P:P')]di-, (Co-Co) (9CI) (CA INDEX NAME)





RN 66632-91-5 HCA

CN Cobalt, tris[ $\mu$ -(methylimidodiphosphorous tetrafluoride-P:P')] $\mu$ -(triphenylphosphine)di-, (Co-Co) (9CI) (CA INDEX NAME)

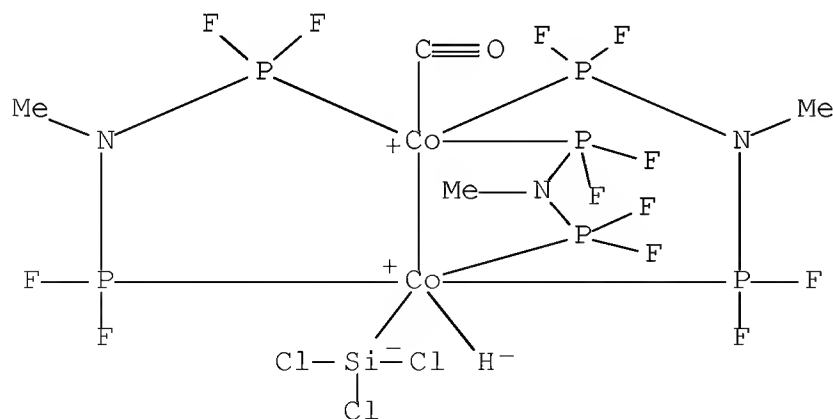


IT 124756-81-6P

(photoprodn. of, by UV irradiation of fluorophosphine-bridged cobalt dimer in presence of trichlorosilane)

RN 124756-81-6 HCA

CN Cobalt, carbonylhydrotris[ $\mu$ -(methylimidodiphosphorous tetrafluoride-P:P')](trichlorosilyl)di-, (Co-Co) (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 67, 78

ST photoreaction fluorophosphine cobalt iron dimer;  
 photocatalysis fluorophosphine bridged metal dimer

IT Photolysis catalysts  
 (fluorophosphine-bridged iron and cobalt  
 dimers as)

IT Photolysis  
 (of fluorophosphine-bridged iron and cobalt  
 dimers)

IT Catalysts and Catalysis  
 (photochem., fluorophosphine-bridged iron and cobalt dimers as)

IT Hydrosilylation  
 (photochem., of fluorophosphine-bridged iron and  
 cobalt dimers)

IT Hydrogenation  
 Isomerization  
 (photochem., of pentene, fluorophosphine-bridged iron  
 and cobalt dimers in)

IT 1333-74-0  
 (hydrogenation, photochem., of pentene, fluorophosphine-bridged  
 iron and cobalt dimers in)

IT 109-67-1, 1-Pentene  
 (photocatalyzed isomerization and hydrogenation of,  
 fluorophosphine-bridged iron and cobalt  
 dimers in)

IT 62944-85-8 64799-21-9 66632-91-5  
 (photochem. and photocatalytic properties of)

IT 617-86-7, Triethylsilane  
 (photochem. and photocatalytic properties of fluorophosphine-  
 bridged iron and cobalt dimers in presence  
 of)

IT 98-86-2, Acetophenone, properties  
 (photochem. and photocatalytic properties of fluorophosphine-  
 bridged iron and cobalt dimers in presence  
 of)

IT 124756-81-6P  
 (photoprodn. of, by UV irradiation of fluorophosphine-bridged cobalt  
 dimer in presence of trichlorosilane)

L111 ANSWER 11 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 112:6992 HCA Full-text

OREF 112:1372a

TI 1-Pentene hydroformylation using the mixed-metal cluster  
 $\text{Fe}_2\text{Co}_2(\text{CO})_{11}(\mu_4\text{-PPh})_2$ : cylindrical internal reflectance evidence  
 for cluster catalysis

AU Richmond, Michael G.

CS Cent. Organometallic Res. Educ., Univ. North Texas, Denton, TX,

76201, USA

SO Journal of Molecular Catalysis (1989), 54(2), 199-204  
 CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

OS CASREACT 112:6992

AB The title ~~catalyzes~~ the hydroformylation of 1-pentene to hexanal and 2-methylpentanal in moderate to high yield under mild batch conditions. Cluster catalysis is suggested based on FTIR and HPLC analyses of the final reaction solns., and in situ cylindrical internal reflectance measurements of the working catalyst soln. A ~~closo~~ → nido polyhedral transformation in the cluster is proposed as the entry point into the catalytic cycle.

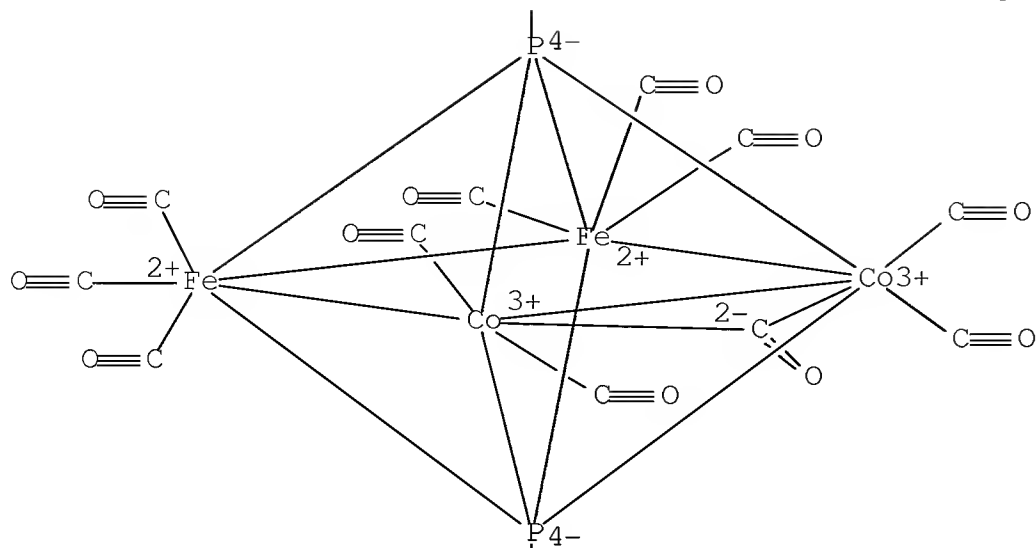
IT 78456-88-9  
 (catalysts, for hydroformylation of pentene)

RN 78456-88-9 HCA

CN Iron, hexacarbonyl( $\mu$ -carbonyltetracarbonyldicobalt)bis[ $\mu$ 4-(phenylphosphoranetetrayl)]di-, (Co-Co)(2Co-Fe)(Fe-Fe) (9CI) (CA INDEX NAME)

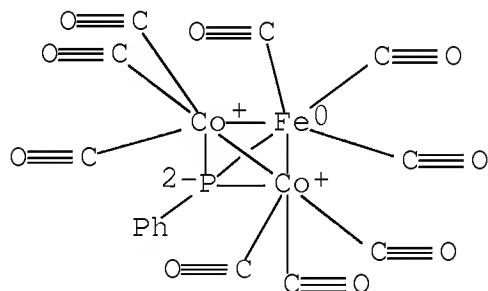
PAGE 1-A

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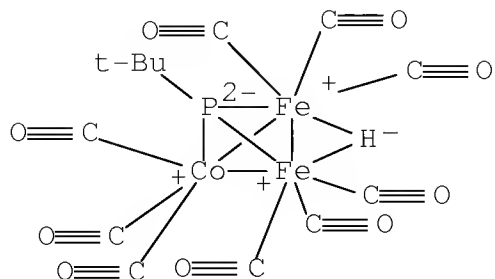
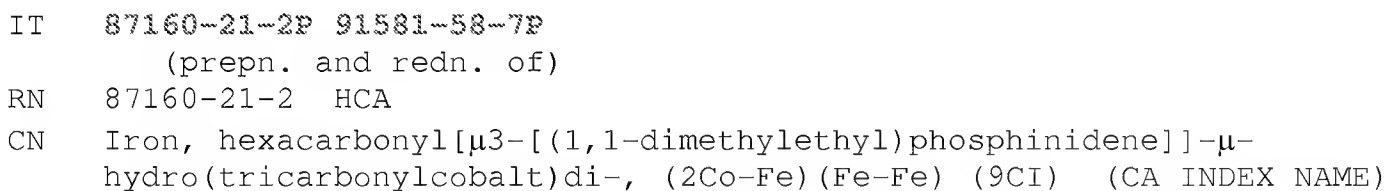
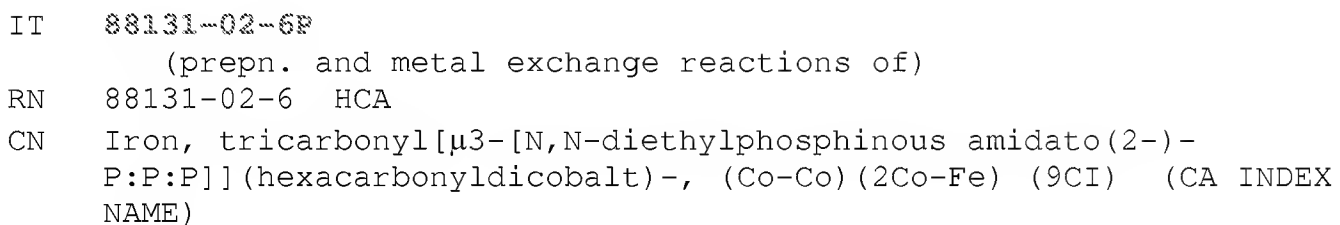


CC 22-13 (Physical Organic Chemistry)  
 ST pentene hydroformylation iron cobalt  
 cluster; FTIR pentene hydroformylation metal cluster  
 IT Hydroformylation catalysts  
 (cobalt-iron cluster, for pentene, FTIR study  
 of)  
 IT 78456-88-9  
 (catalysts, for hydroformylation of pentene)  
 IT 109-67-1, 1-Pentene  
 (hydroformylation of, iron cobalt  
 cluster catalyzed)

TI Metal exchange in clusters under redox conditions  
 AU Honrath, Ute; Vahrenkamp, Heinrich  
 CS Inst. Anorg. Anal. Chem., Univ. Freiburg, Freiburg, D-7800, Fed.  
 Rep. Ger.  
 SO Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie,  
 Organische Chemie (1984), 39B(5), 559-65  
 CODEN: ZNBAD2; ISSN: 0340-5087  
 DT Journal  
 LA German  
 AB The paramagnetic clusters  $\text{ECo}_3(\text{CO})_9$  ( $\text{E} = \text{S}, \text{Se}, \text{PCMe}_3, \text{PPh}, \text{PNEt}_2, \text{POBu}, \text{PSEt}$ ), some of which were fully characterized for the first time, were treated with  $\text{Na}_2\text{Fe}(\text{CO})_4$ . The resulting metal exchange, which is a redox reaction, produced the clusters  $\text{EFeCo}_2(\text{CO})_9$ . Further treatment with  $\text{Na}_2\text{Fe}(\text{CO})_4$  and acidification produced the clusters  $\text{EFe}_2\text{Co}(\text{CO})_9\text{H}$ , the anions of which could be isolated as PPN salts. Electron transfer catalysis with benzophenone ketyl allowed the conversion of  $\text{EFeCo}_2(\text{CO})_9$  ( $\text{E} = \text{S}, \text{Se}, \text{PNEt}_2$ ) with  $\text{NaMCP}(\text{CO})_3$  ( $\text{M} = \text{Mo}, \text{W}$ ) into the chiral clusters  $\text{EFeCoM}(\text{CO})_8\text{Cp}$ .  
 IT 69569-55-7P 87160-20-1P  
 (prepn. and exchange reaction of, with iron carbonyl dianion)  
 RN 69569-55-7 HCA  
 CN Iron, tricarbonyl(hexacarbonyldicobalt) [ $\mu_3$ -(phenylphosphinidene)]-,  
 (Co-Co)(2Co-Fe) (9CI) (CA INDEX NAME)

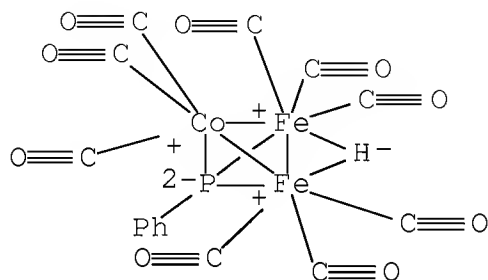


RN 87160-20-1 HCA  
 CN Iron, tricarbonyl [ $\mu_3$ -(1,1-dimethylethyl)phosphinidene]] (hexacarbonyldicobalt)-, (Co-Co)(2Co-Fe) (9CI) (CA INDEX NAME)



RN 91581-58-7 HCA

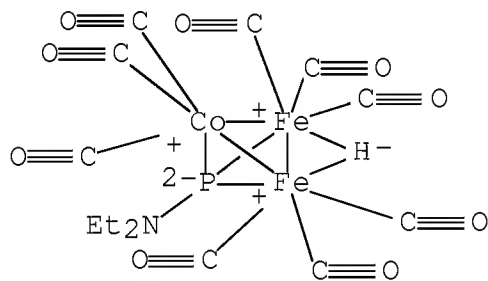
CN Iron, hexacarbonyl- $\mu$ -hydro[ $\mu$ 3-(phenylphosphinidene)](tricarbonylcobalt)di-, (2Co-Fe)(Fe-Fe) (9CI) (CA INDEX NAME)



IT 91581-59-8P 91609-90-4P  
(prepn. of)

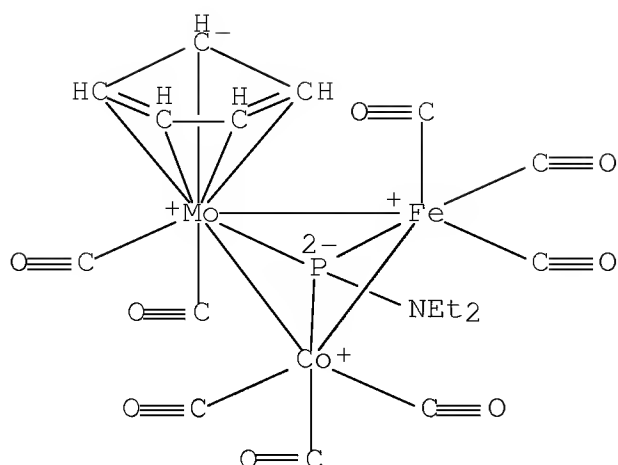
RN 91581-59-8 HCA

CN Iron, hexacarbonyl[ $\mu$ 3-[N,N-diethylphosphinous amidato(2-)-P:P:P]](tricarbonylcobalt)di-, (2Co-Fe)(Fe-Fe) (9CI)  
(CA INDEX NAME)

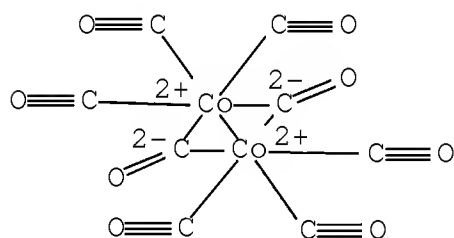


RN 91609-90-4 HCA

CN Molybdenum, dicarbonyl( $\eta$ 5-2,4-cyclopentadien-1-yl)[ $\mu$ 3-[N,N-diethylphosphinous amidato(2-)-P:P:P]](tricarbonylcobalt)(tricarbonyliron)-, (Co-Fe)(Co-Mo)(Fe-Mo) (9CI) (CA INDEX NAME)



IT 10210-68-1  
 (reaction of, with dichlorophosphines or di-Ph diselenide)  
 RN 10210-68-1 HCA  
 CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)  
 IT Redox reaction  
 (of cobalt clusters, with iron tetracarbonyl dianion)  
 IT Exchange reaction  
 (of metals, in cobalt-iron clusters)  
 IT Cluster compounds  
 (cobalt-iron, metal exchange in)  
 IT 69569-55-7P 87160-20-1P  
 (prepn. and exchange reaction of, with iron carbonyl dianion)  
 IT 22364-22-3P 35163-36-1P 88131-02-6P  
 (prepn. and metal exchange reactions of)  
 IT 87160-21-2P 91581-57-6P 91581-58-7P  
 (prepn. and redn. of)



IT 68185-55-7P 68185-56-8P 78547-58-7P 91373-53-4P 91408-26-3P  
 91408-27-4P 91408-28-5P ~~91581-59-8P~~ 91581-61-2P  
 91581-62-3P 91581-63-4P 91594-40-0P ~~91609-90-4P~~  
 91609-91-5P

(prepn. of)

IT 10210-68-1

(reaction of, with dichlorophosphines or di-Ph diselenide)

L111 ANSWER 13 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 97:91415 HCA Full-text

OREF 97:15239a,15242a

TI Mechanistic approaches and high pressure homogeneous hydrogenation  
 of carbon monoxide

AU Keim, Wilhelm; Berger, Michael; Eisenbeis, Ansgar; Kadelka, Juergen;  
 Schlupp, Johannes

CS Inst. Tech. Chem. Petrolchem., Tech. Hochsch. Aachen, Aachen,  
 D-5100, Fed. Rep. Ger.

SO Journal of Molecular Catalysis (1981), 13(1), 95-106  
 CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

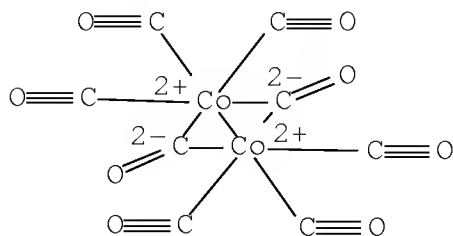
AB Complexes with sp<sup>3</sup>- and sp<sup>2</sup>-hybridized C-metal bonds were reacted  
 with CO and H-CO mixts. Only insertion was obsd. in all cases.  
 Clusters and complexes of Group VIII elements were used as catalysts  
 for the homogeneous hydrogenation of CO at high pressures. A variety  
 of oxygenated compds. such as Me formate, Me acetate, Et formate,  
 MeOH, EtOH, PrOH, propylene glycols, ethylene glycol and glycerin was  
 formed. The mechanism of the Co-catalyzed reactions was discussed  
 and noncluster bimetallic intermediates were proposed for the key  
 steps.

IT 10210-68-1

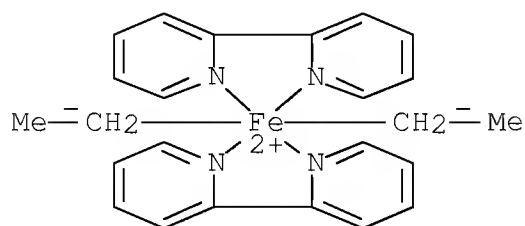
(catalysts, for high pressure homogeneous hydrogenation  
 of carbon monoxide)

RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



IT 15627-21-1  
 (reaction of, with carbon monoxide or carbon monoxide-hydrogen mixts.)  
 RN 15627-21-1 HCA  
 CN Iron, bis(2,2'-bipyridine-κN1,κN1')diethyl- (CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)  
 ST carbon monoxide homogeneous hydrogenation; cluster catalysis  
 carbon monoxide hydrogenation; insertion carbon monoxide metal  
 IT Hydrogenation catalysts  
 (group VIII carbonyls, for carbon monoxide, mechanism with)  
 IT 10210-68-1 14874-82-9 15243-33-1  
 (catalysts, for high pressure homogeneous hydrogenation of carbon monoxide)  
 IT 630-08-0, reactions  
 (hydrogenation of, catalytic, mech. of, insertion reactions with carbon-metal bonds in relation to)  
 IT 15218-76-5 15380-73-1 15627-21-1 15975-90-3  
 15975-91-4 15975-92-5 23272-69-7 27436-93-7 37823-96-4  
 (reaction of, with carbon monoxide or carbon monoxide-hydrogen mixts.)

L111 ANSWER 14 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 93:238305 HCA Full-text

OREF 93:38159a,38162a

TI The interaction of chelated lithium complexes with transition metal compounds as catalysts in organic synthesis

AU Moser, William R.; Langer, Arthur W., Jr.

CS Badger Co., Cambridge, MA, USA

SO Catalysis in Organic Syntheses (1980), Volume Date 1978, 7th, 219-32

CODEN: CAOSDF; ISSN: 0197-534X

DT Journal

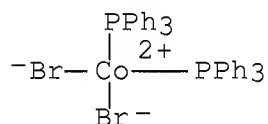
LA English

AB Several examples where the phys. and chem. properties of Li salt N-chelates offer unique advantage for the synthesis of catalysts and pure coordination complexes are provided. The catalytic activity of borohydride complexes, e.g.,  $\text{FeCl}(\text{BH}_4)[\text{MeN}(\text{CH}_2\text{CH}_2\text{NMe}_2)_2]$ , was examd. in butadiene (I) dimerization and cyclization, propene dimerization, ketone redns. and olefin dismutation and hydroformylation. The complexes were active only in I reactions.

IT 14126-32-0  
(addn. of lithium complex to)

RN 14126-32-0 HCA

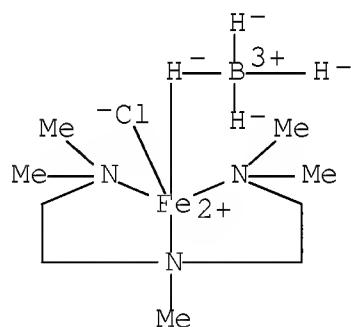
CN Cobalt, dibromobis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



IT 75747-73-8 75747-74-9 75747-75-0  
(catalysts, for reactions of butadiene)

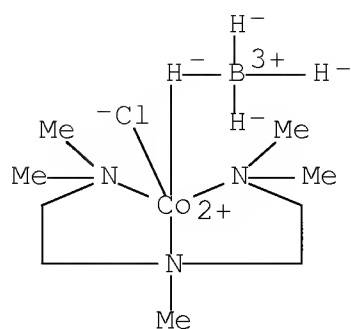
RN 75747-73-8 HCA

CN Iron, chloro[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)  
(CA INDEX NAME)



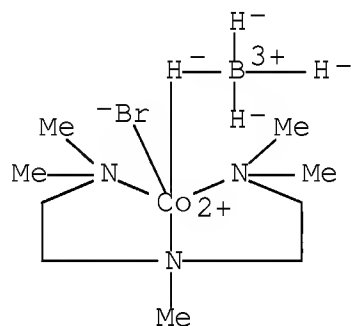
RN 75747-74-9 HCA

CN Cobalt, chloro[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)  
(CA INDEX NAME)



RN 75747-75-0 HCA

CN Cobalt, bromo[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)  
(CA INDEX NAME)



CC 22-5 (Physical Organic Chemistry)  
Section cross-reference(s): 67

IT 14126-32-0 14126-37-5  
(addn. of lithium complex to)

IT 75747-71-6 75747-72-7 75747-73-8 75747-74-9  
75747-75-0  
(catalysts, for reactions of butadiene)

L111 ANSWER 15 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 93:188998 HCA [Full-text](#)

OREF 93:30115a,30118a

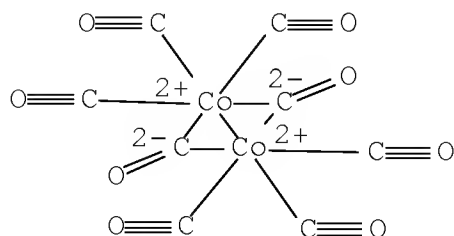
TI Catalyst for the refining of liquid and gaseous industrial mixtures containing mercaptans

IN Nametkin, N. S.; Sobolev, V. M.; Tyurin, V. D.; Nechaev, A. I.; Larionov, L. I.; Nechaeva, L. A.; Zhadanovskii, N. B.; Kukina, M.

A.; Dekhterman, A. S.; et al.  
 PA Topchiev, A. V., Institute of Petrochemical Synthesis, USSR; Gubkin, I. M., Institute of the Petrochemical and Gas Industry, Moscow; Gorki State Institute for Designing Plants of the Petroleum Refining and Petrochemical Industry; Novogorkovsk Petroleum Refining Plant  
 SO Ger. Offen., 55 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 1

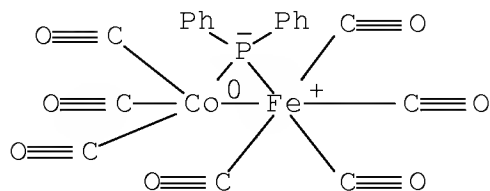
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2829547	A1	19800124	DE 1978-2829547	19780705
NL 7807124	A	19800103	NL 1978-7124	19780630

PRAI DE 1978-2829547 A 19780705 <--  
 AB Carbonyl compds. of monomeric or polymeric complexes of Fe and/or Group VI-VIII metals are *catalysts* for oxidizing mercaptans in mixts., i.e. petroleum products, to disulfides. Thus, heating 26.4 g Mo(CO)<sub>6</sub> and 7.6 g CH<sub>2</sub>:CHCH<sub>2</sub>Cl [107-05-1] in 250 mL MeCN 5 h at 50° gives 12.1 g π-C<sub>3</sub>H<sub>5</sub>(MeCN)<sub>2</sub>Mo(CO)<sub>2</sub>Cl (I) [33221-75-9]. Countercurrent scrubbing with a kerosine soln. of I of a mixt. of H<sub>2</sub> 4, CH<sub>4</sub> 76.8, C<sub>2</sub>H<sub>6</sub> 4.4, C<sub>3</sub>H<sub>8</sub> 1.7, C<sub>4</sub>H<sub>10</sub> 0.8, and N 12.3% contg. 0.90043% mercaptan S lowers the mercaptan S content to 0.0003%.  
 IT 10210-68-1D, reaction products with aminotriazole deriv. polymers 22852-98-8 37081-11-1  
 (catalysts, for oxidn. of mercaptans in org. compds.)  
 RN 10210-68-1 HCA  
 CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



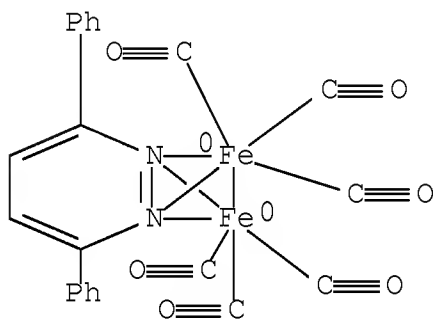
RN 22852-98-8 HCA

CN Iron, tetracarbonyl[ $\mu$ -(diphenylphosphino)](tricarbonylcobalt)-,  
(Co-Fe) (9CI) (CA INDEX NAME)



RN 37081-11-1 HCA

CN Iron, hexacarbonyl[ $\mu$ -(3,6-diphenylpyridazine-N1,N2:N1,N2)]di-,  
(Fe-Fe) (9CI) (CA INDEX NAME)



IC B01J031-26; C10G023-02

CC 51-5 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 35, 49, 67

ST **catalyst** oxidn mercaptan disulfide; molybdenum complex

**catalyst** oxidn; allylmolybdenum complex **catalyst**

oxidn; acetonitrile complex molybdenum **catalyst**; carbonyl

molybdenum **catalyst** oxidn; natural gas mercaptan oxidn

IT Carbonyls

(**catalysts**, for oxidn. of mercaptans in org. compds.)

IT Alcohols, uses and miscellaneous

Hydrocarbons, uses and miscellaneous

Natural gas

(mercaptan removal from, oxidn. **catalysts** for)

IT Oxidation **catalysts**

(metal chelates, for thiols in org. compds.)

IT Thiols, reactions

(oxidn. of, in org. compds., catalysts for)

IT 62-53-3D, manganese complexes 107-05-1D, palladium complexes  
121-44-8D, iron complexes 584-13-4D, deriv., polymers, reaction  
products with cobalt carbonyl 6783-75-1D, cobalt complexes  
9002-98-6D, reaction products with iron carbonyls 9003-17-2D,  
complexes with iron carbonyl 9003-39-8D, reaction products with  
iron carbonyls 10210-68-1D, reaction products with  
aminotriazole deriv. polymers 12152-72-6 12253-47-3D, reaction  
products with iron carbonyl 13007-92-6D, reaction products with  
polyureas 13463-40-6D, reaction products with butadiene-vinyl  
piciline polymers 13939-06-5D, reaction products with  
poly(vinylpyridine) 14971-26-7D, reaction products with thiazole  
deriv. polymers and sodium iron carbonyl 15228-21-4 15668-57-2  
17685-52-8D, reaction product with polymers 19456-57-6  
22309-04-2 22852-98-8 25085-55-6D, complexes with iron  
carbonyl 25232-41-1D, reaction product with molybdenum carbonyl  
27044-31-1D, reaction products with iron carbonyls 29384-95-0D,  
iron complexes 31082-69-6 32716-35-1 33221-75-9 33678-01-2  
37081-11-1 52390-31-5 55958-48-0D, reduced 73906-13-5  
73906-15-7 73906-16-8 73906-18-0 73906-20-4 73914-10-0  
73914-37-1 73929-52-9 80238-56-8

(catalysts, for oxidn. of mercaptans in org. compds.)

IT 1101-41-3  
(reaction of, with iron carbonyl and cobalt  
carbonyl)

L111 ANSWER 16 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 93:25827 HCA Full-text

OREF 93:4325a,4328a

TI High-pressure homogeneous hydrogenation of carbon monoxide in polar  
and nonpolar solvents

AU Keim, W.; Berger, M.; Schlupp, J.

CS Inst. Tech. Chem. Petrolchem., Rheinisch-Westfael. Tech. Hochsch.,  
Aachen, D-5100, Fed. Rep. Ger.

SO Journal of Catalysis (1980), 61(2), 359-65

CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB The homogeneous hydrogenation of CO was carried out at high pressures  
over clusters and complexes of Group VIII elements of the periodic  
table as catalysts. A variety of oxygenated compds. such as HCO<sub>2</sub>Me,  
HCO<sub>2</sub>Et, AcOMe, MeOH, EtOH, PrOH, propylene glycols, ethylene glycol,  
and glycerin were formed in varying degrees. The polarity of the  
solvent plays an important role. In the nonpolar system  
toluene/Co<sub>2</sub>(CO)<sub>8</sub>, good conversions and selectivities to HCO<sub>2</sub>Me, MeOH  
and ethylene glycol were obsd. The mechanism of the Co-catalyzed

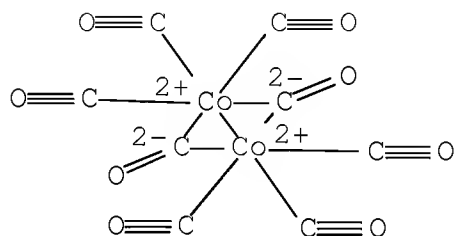
reactions is discussed and noncluster intermediates are proposed for the key steps.

IT 10210-68-1 17685-52-8

(catalysts, for homogenous high-pressure hydrogenation of carbon monoxide)

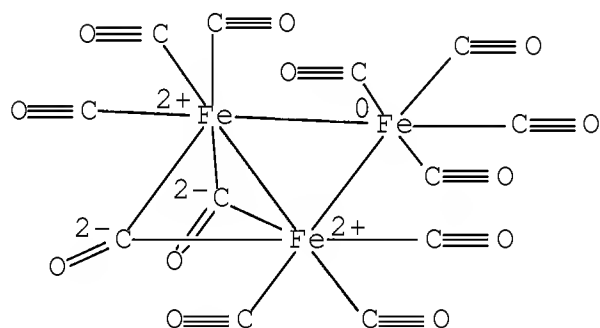
RN 10210-68-1 HCA

CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 17685-52-8 HCA

CN Iron, di- $\mu$ -carbonyldecacarbonyltri-, triangulo (CA INDEX NAME)



IT 504-63-2P

(prepn. of, by hydrogenation of carbon monoxide)

RN 504-63-2 HCA

CN 1,3-Propanediol (CA INDEX NAME)



CC 23-7 (Aliphatic Compounds)



IT 3264-82-2 ~~10210-68-1~~ 14024-61-4 14874-82-9  
15243-33-1 15696-40-9 16941-12-1 ~~17685-52-8~~  
18827-81-1  
(catalysts, for homogenous high-pressure hydrogenation of carbon monoxide)

IT 56-81-5P, preparation 57-55-6P, preparation 64-17-5P,  
preparation 67-56-1P, preparation 71-23-8P, preparation  
79-20-9P 107-21-1P, preparation 107-31-3P 109-94-4P  
~~504-63-2P~~ 628-35-3P  
(prepn. of, by hydrogenation of carbon monoxide)

L111 ANSWER 17 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 89:155497 HCA Full-text

OREF 89:23975a,23978a

TI Photo-induced declusterification of  $\text{HCCo}_3(\text{CO})_9$ ,  $\text{CH}_3\text{CCo}_3(\text{CO})_9$ , and  $\text{HFeCo}_3(\text{CO})_{12}$

AU Geoffroy, Gregory L.; Epstein, Ronald A.

CS Dep. Chem., Pennsylvania State Univ., University Park, PA, USA

SO Advances in Chemistry Series (1978), 168(Inorg. Organomet. Photochem.), 132-46  
CODEN: ADCSAJ; ISSN: 0065-2393

DT Journal

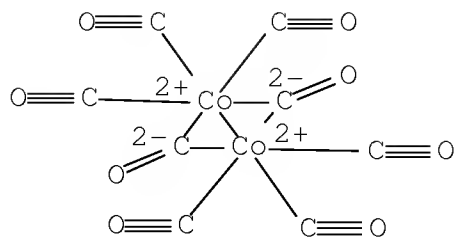
LA English

AB Irradn. of solns. of  $\text{HCCo}_3(\text{CO})_9$  under a  $\text{H}_2$  atm. with visible or UV light leads to quant. formation of  $\text{Co}_4(\text{CO})_{12}$  and prodn. of  $\text{CH}_4$ . Under a 3:1  $\text{H}_2$ :CO atm., irradn. produces  $\text{Co}_2(\text{CO})_8$  with a 366-nm quantum yield of 0.03. Photolysis in the presence of  $\text{D}_2$  showed that the  $\text{CH}_4$  derives from the apical CH group and not from CO. Irradn. of  $\text{HCCo}_3(\text{CO})_9$  in the presence of  $\text{H}_2$  and 1-hexene leads to catalytic isomerization to cis- and trans-2-hexene. The photochem. properties of  $\text{MeCCo}_3(\text{CO})_9$  parallel those of  $\text{HCCo}_3(\text{CO})_9$  except that no reaction occurs under a  $\text{H}_2$ -CO atm. Irradn. of  $\text{HFeCo}_3(\text{CO})_{12}$  and  $\text{HFeCo}_3(\text{CO})_{10}(\text{PPh}_3)_2$  in degassed solns. also leads to declusterification with subsequent formation of  $\text{Co}_4(\text{CO})_{12}$  and  $\text{Co}_2(\text{CO})_6(\text{PPh}_3)_2$ , resp. The Fe-contg. products were not identified.

IT ~~10210-68-1P~~  
(formation of, in photolysis of cobalt carbonyl cluster complex in hydrogen-carbon monoxide atm.)

RN 10210-68-1 HCA

CN Cobalt, di- $\mu$ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)

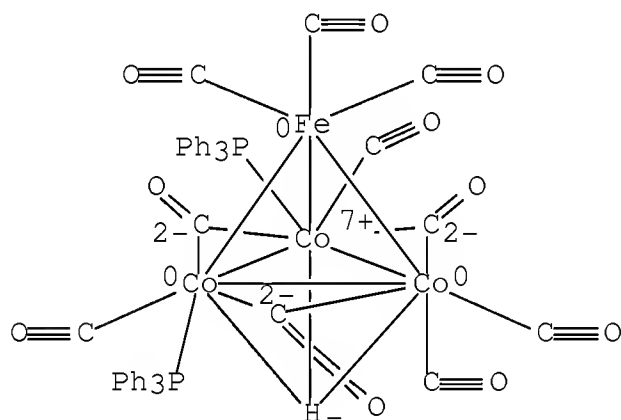


IT 56009-83-7

(photolysis of, degassed solns., declusterification in)

RN 56009-83-7 HCA

CN Iron, tricarbonyl[tri- $\mu$ -carbonyltetracarbonyl- $\mu^3$ -hydrobis(triphenylphosphine)tricobalt]-, (3Co-Co)(3Co-Fe), stereoisomer (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic Processes)

ST photolysis organometallic cluster complex; cobalt carbonyl cluster complex photolysis; iron cobalt cluster complex photolysis

IT Photolysis

(of cobalt and cobalt iron carbonyl cluster complex, declusterification in)

IT 10210-68-1P

(formation of, in photolysis of cobalt carbonyl cluster complex in hydrogen-carbon monoxide atm.)

IT 24212-54-2P

(formation of, in photolysis of cobalt iron carbonyl triphenylphosphine cluster complex)

IT 1333-74-0, uses and miscellaneous  
 (photolysis of cobalt and cobalt iron  
 carbonyl cluster complexes in presence of)  
 IT 630-08-0, uses and miscellaneous  
 (photolysis of cobalt and cobalt iron  
 carbonyl cluster complexes in presence of hydrogen and)  
 IT 21750-96-9 56009-83-7  
 (photolysis of, degassed solns., declusterification in)

L111 ANSWER 18 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 75:40967 HCA Full-text

OREF 75:6451a,6454a

TI First-row transition metal complexes for use as hydrogenation  
 catalysts

IN Lagrange, Yvon; Martino, Germain

PA Institut Francais du Petrole, des Carburants et Lubrifiants

SO Fr. Demande, 7 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	FR 2034147		19710108	FR 1969-3224	196902
					11

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AB A method is described for the prepn. of organometallic compds. which  
 can be used as hydrogenation, hydroformylation, and codimerization  
 catalysts. They have as a general formula  $H_xX_yML_n$ , where x and y are  
 nos. in the range 0-1, n a pos. integer that takes the values 1 or 2,  
 X a halogen atom or a  $ClO_4^-$  or  $NO_3^-$  ion and M a metal of the first  
 transition metals row (namely Fe, Co, or Ni). L is a ligand with 2  
 bound atoms such as 1,2- bis(diphenylphosphino)ethane or -propane, or  
 any other similar compd. contg. 2 atoms of Group VA such as P and As.  
 These 2 atoms can be coordinated on the same metal ion. The process  
 is characterized by the fact that a compd. of the former metals is  
 reduced by  $NH_2-NH_2$  (or a deriv.) in the presence of one of the above  
 coordinates. The hydrazine derivative is characterized by the fact  
 that 1 hydrogen atom is replaced by an hydrocarbon chain contg. 1 to  
 20 atoms. Typically, 3 g  $CoCl_2(DPE)_2$ , where DPE is 1,2-  
 bis(diphenylphosphino)ethane, and 1 g hydrazine hydrate are dissolved  
 in 50 cm<sup>3</sup> 2-propanol and stirred for 1 hr at 40° under  $H_2$  atm. A  
 ppt. is obtained and isolated which corresponds to  $HCo(DPE)_2$ . The  
 yield is of the order of 90%.

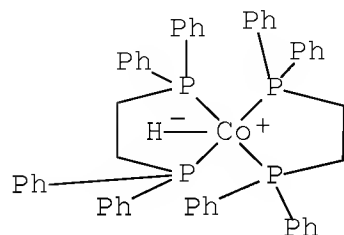
IT 18433-72-2P 32490-70-3P 33395-95-8P

33395-96-9P

(catalysts, manuf. of)

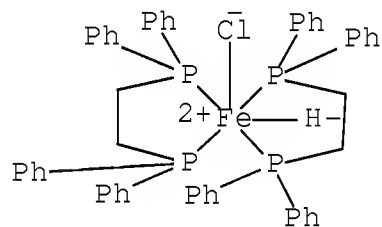
RN 18433-72-2 HCA

CN Cobalt, bis[1,2-ethanediylbis[diphenylphosphine]-P,P']hydro- (9CI)  
(CA INDEX NAME)



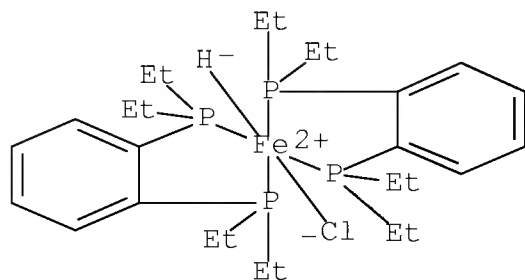
RN 32490-70-3 HCA

CN Iron, chlorobis[1,1'-(1,2-ethanediyl)bis[1,1-diphenylphosphine-κP]]hydro- (CA INDEX NAME)

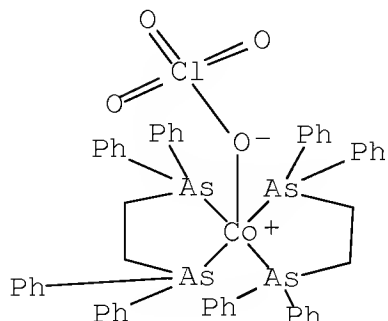


RN 33395-95-8 HCA

CN Iron, chlorohydrobis[o-phenylenebis[diethylphosphine]]- (8CI) (CA INDEX NAME)



RN 33395-96-9 HCA  
CN Cobalt, bis[ethylenebis[diphenylarsine]]perchlorato- (8CI) (CA  
INDEX NAME)



IC B01J  
CC 67 (Catalysis and Reaction Kinetics)  
IT 15628-25-8P 18433-72-2P 32490-70-3P  
33364-30-6P 33364-31-7P 33395-95-8P 33395-96-9P  
1663-45-2D, Phosphine, ethylenebis[diphenyl-, transition metal  
complexes 4431-24-7D, Arsine, ethylenebis[diphenyl-, cobalt  
complexes 19845-68-2D, Phosphine, o-phenylenebis[diethyl-,  
transition metal complexes  
(catalysts, manuf. of)

L111 ANSWER 19 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 63:3424 HCA Full-text

OREF 63:630d-e

TI Reaction of a cobalt-containing Ziegler-type system with carbon  
monoxide. Direct synthesis of dicobalt octacarbonyl and an  
acylcobalt tetracarbonyl at room temperature

AU Szabo, Pal; Marko, Laszlo

CS Hungarian Oil Gas Res. Inst., Veszprem

SO Journal of Organometallic Chemistry (1965), 3(5), 364-6

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA English

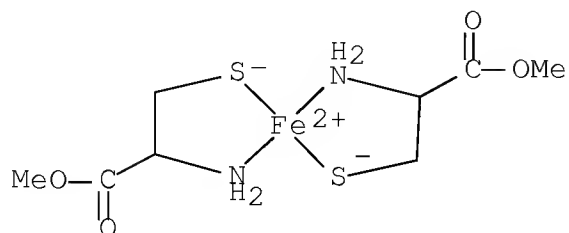
AB Propionylcobalt tetracarbonyl and dicobalt octacarbonyl are formed at  
room temp. from triethylaluminum and cobalt stearate-contg. hexane  
solns. by reacting with carbon monoxide. The formation of the  
acylcobalt tetracarbonyl complex proves the presence of ethylcobalt  
groups in this Ziegler-type system and is the first direct synthesis  
of an acylmetal carbonyl deriv. Nickel- and iron-contg. analogous  
solns. give nickel tetracarbonyl and iron pentacarbonyl, resp.

IT 12241-31-5

(Derived from data in the 7th Collective Formula Index  
(1962-1966))

RN 12241-31-5 HCA

CN Iron, bis(methyl L-cysteinato-N,S)- (9CI) (CA INDEX NAME)

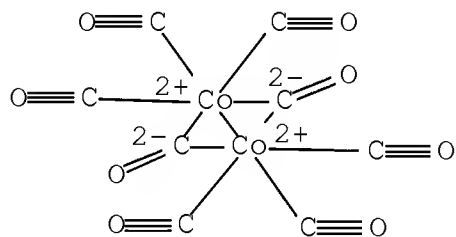


IT 10210-68-1P, Cobalt carbonyl, Co<sub>2</sub>(CO)<sub>8</sub>

(prepn. of, at room temp.)

RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)

IT Catalysts and Catalysis

(in cobalt carbonyl prepn. from CO, Co-contg. Ziegler)

IT 12241-31-5

(Derived from data in the 7th Collective Formula Index  
(1962-1966))

IT 10210-68-1P, Cobalt carbonyl, Co<sub>2</sub>(CO)<sub>8</sub>

(prepn. of, at room temp.)

IT 630-08-0, Carbon monoxide

(reactions of, with Co-contg. Ziegler catalysts, Co  
carbonyls by)